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ABSTRACT

This book incorporates teaching strategies to enhance middle school science and social studies using service learning. The book was developed by teachers who participated in a series of institutes conducted by the Social Science Education Consortium and the Science Discovery Program at the University of Colorado during the summers of 1993 and 1994. Chapters 1 and 2 provide an overview of service learning - what it is, what its benefits are, and how it is related to other current educational reforms, including standards-based education. Chapter 3 introduces the curriculum integration planning framework developed to guide the process of creating integrated science/social studies/service learning units for use in the middle school. Chapter 4 describes several of the integrated units developed in this project, including the two staff-developed demonstration units and six teacher-developed units. A chapter on assessment is included since assessment of integrated units with multiple outcomes is complex. The book concludes with a listing of resources useful to teachers wanting to learn more about service learning. (EH)

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Service Learning in the Middle School Curriculum

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SERVICE LEARNING IN THE MIDDLE SCHOOL CURRICULUM: A RESOURCE BOOK

by

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Adams-Arapahoe 28J (Colorado)
- North Middle School

Adams County School District 14 (Colorado)
- Adams City Middle School
- Kearney Middle School

BIA/OIEP Sky City Community School (New Mexico)

Colorado Springs School District 11 (Colorado)
- West Center for Intergenerational Learning

Marana Unified School District (Arizona)
- Tortolita Junior High School

Mesa Public Schools (Arizona)
- Hendrix Junior High School
- Kino Junior High School

Mescalero Apache School (New Mexico)

Pueblo School District 60 (Colorado)
- Corwin Middle School

Pueblo County Rural District 70 (Colorado)
- Vineland Middle School

Santa Cruz County School District #35 (Arizona)
- Pierson Middle School
- Wade Carpenter Middle School
- Patagonia Middle School
- Mountain View/Calabasa

Tucson Unified School District (Arizona)
- Carson Middle School
- Townsend Middle School
- Doolen Middle School
- Mansfeld Middle School
- Wakefield Middle School
- Naylor Middle School
- Secrist Middle School
- Booth-Ficket Magnet
- Gridley Middle School
- Roskruge Bilingual Middle Magnet
- Valencia Middle School

Washington School District #6 (Arizona)
- Sunnyslope School

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Enhancing the Middle School Curriculum
Through Service Learning

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Chapter 1

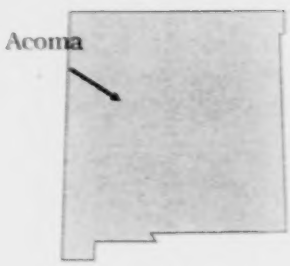
Introduction

Dear Community:

We (the community members) have a problem here on our reservation. It's an issue we all should try to resolve. There is so much litter. Trash on the sides of the roads and throughout our community has become a very big eye sore. It's sad to see how we Acoma People treat our environment. Let's show Mother Earth, our community, and our reservation we care by keeping our pueblo clean. By disposing of our trash properly. If we all work together we can make Acoma a beautiful place to live.

Letter to Acoma Pueblo citizens from Sky City Community School students participating in a service learning project.

One Community's Experience



The Sky City Community School is located on the Pueblo of Acoma in New Mexico. During the summer of 1993, four teachers and the principal of the K-8 school were among 40 educators chosen to attend a summer institute conducted by the Social Science Education Consortium, in cooperation with the Science Discovery Program of the University of Colorado-Boulder. With a rich tradition of service and an interest in preservation of the Acoma history and environment, the team from the Sky City Community School developed a unit titled "For the Love of Mother Earth." The stated goals of the unit were for students to (1) learn about the biodiversity that exists in the community and (2) examine the impact that humans have on the preservation and restoration of the earth. Integrated lessons in science, social studies, and other disciplines were combined with service to involve both students and the community in learning.

Gwen Torivio is one of the teachers from the Sky City Community School who attended the institute. During the 1993-94 school year, she and her seventh-grade students piloted the "For the Love of Mother Earth" unit. In science and social studies, students studied ecosystems, biodiversity, and the relation-

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ship between human beings and the environment. Students used the local Acoma environment as a laboratory and a basis for case studies. The service project, which was designed to support the unit goals, involved students in cleaning, painting, and repairing community property in and around the Acoma Pueblo. In addition, students made "no litter" signs, developed and distributed pamphlets about littering, and spoke to community groups about the need to preserve and take care of "Mother Earth."

At the conclusion of the unit, Ms. Torivio asked students to reflect on what they had learned as a result of participating in the unit. Subina H. said she learned "...how important our community and Mother Earth (are), and to always keep them clean." Natalie V. said that she "...liked trying to make the community a beautiful place, and that we should educate people about the problems in the community." Describing the project, LeeAnn C. said that "...the class went out and picked up trash, painted over graffiti, and fixed up the Acoma Lake picnic area by painting, sanding, and hoeing weeds." LeeAnn also stated that she "...liked going out and picking up trash and educating people on recycling." She said that through the project she "...learned not to be shy, to get up in front of people, to organize plans, and carry out a responsibility." "We opened people's eyes," she reflected, "and they came in and thanked us." Teacher Gwen Torivio believes that "...through their research and interviews students gained an insight as to the need for personal responsibility as active citizens in the community." Ms. Torivio further states that "students are beginning to understand the need for their involvement, which in turn has seemed to build a sense of pride and importance."

The Project Experience

The experience of Gwen Torivio and her students in implementing the Sky City team's integrated service learning project reflects many aspects of the work of the National Science Foundation project, "Enhancing the Middle School Curriculum Through Community Service." The three-year project began October 1, 1992, against the backdrop of middle school structural and curricular reform.

The cooperative SSEC/Science Discovery project involved teams of middle school science and social studies teachers who, working together, have developed instructional units that integrate science, social studies, and service learning. Since the project's inception, approximately 80 teachers from 11 school districts in Colorado, New Mexico, and Arizona have directly par-

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ticipated in the project, and 18 instructional units have been developed and implemented.

How did the project work with these 80 teachers? Project activities included two cycles of summer institutes and implementation, as discussed below.

Summer Institutes

Believing that the most successful educational change projects are developed and implemented by those responsible for delivering and administering the change, each cycle of project activity began with the selection of teachers and administrators to attend a monthlong summer institute. In order to develop a "critical mass" in particular school districts, those schools and school districts involved in the first cycle of activities were asked to recruit participants for the second cycle as well.

I was searching for a method (teaching strategy) to make my students aware of and concerned about their community. I now have tools, plans, and activities to accomplish my goal of getting students to "learn to give and give to learn." —Jimmy Furlow, social studies teacher, Hendrix Junior High School, Mesa, Arizona.

Summer institutes were conducted both in 1993 and 1994. Life science and social studies were the focus of the 1993 summer institute, while the 1994 institute stressed earth science and social studies. Each institute was designed to (1) introduce participants to the nature and scope of service learning; (2) provide an opportunity for participants to examine and develop interdisciplinary curriculum linkages; and (3) assist teams in developing integrated instructional units. To assist participants in this process, the staff prepared its own model units for demonstration at the institute. Each of the staff-developed model units contained a series of lessons that integrated science, social studies, and service activities to develop understanding of a major theme. At the 1993 institute, the model unit, cleverly titled "Splendor in the Grass," focused on biodiversity. The 1994 model unit, "How the Waste Was Won," developed understanding of issues related to recycling, trash reduction, and trash disposal. Following their participation in the service activities, teachers reflected upon the experiences, discussed the processes of planning and conducting a service project, and began to identify service activities that would support their integrated science and social studies curriculum unit.

One of the challenges continually before the project staff was how best to assist the participants in working with two significant innovations simultaneously: interdisciplinary curriculum and service learning. During the 1993 summer institute, the problem was generally given over to the participants. With only the staff-developed model unit and very little structure, the teams were asked to complete the development of and be prepared to pilot their unit by the end of the four-week institute. This approach resulted in a great deal of frustration and wasted time for both participants and staff.

Learning from our mistakes, the staff developed a planning and development framework (discussed in Chapter 3) for the 1994 institute. In essence, the framework reflected the process that the staff went through in planning and creating the model demonstration units. During the four weeks of the 1994 institute, the framework was provided to participants in toto and then divided into sections. During the time allotted for planning and development, participants were provided individual sections of the framework with guiding questions for each step in the process. In these work sessions, participants were instructed to complete each section before moving on to the next. By the end of the institute, all sections were completed and a final product emerged. The results of working from the framework were dramatic. Both the development process and products were greatly improved from year one to year two.

Implementing the Units

During the school year following each institute, the teams were to implement the units they developed at the institute. Topics of these units were diverse, including concepts covered in life and earth science in the science curriculum and geography, history, and civics in social studies. The service projects completed were also varied, ranging from building and installing bat houses to conducting educational programs for the community, acting as junior docents at a desert museum, and planting native plant gardens. Several of the units developed by participating teachers, as well as the staff-developed model units, are described in detail in Chapter 4. The remainder of the units are described in capsule form there.

In addition to implementing their units, each participating team conducted at least one awareness workshop for teachers in their school or school district. Several teams have also conducted workshops at local, regional, and national conferences, as have members of the project staff.

Sharing Our Experience

The purpose of this resource book is to share what the project staff and participants have learned over the course of our efforts to enhance middle school science and social studies using service learning. We do not see it as **the** definitive book on this topic, but we do hope it will be a useful starting place in your efforts to integrate service learning with the middle school curriculum.

The book has five major sections following this introduction. First, we provide an overview of service learning—what it is,

Organization of Guide

Chapter 1—Introduction

Chapter 2—Overview of service learning

Chapter 3—Design and implementation

Chapter 4—Model service learning units

Chapter 5—Assessing service learning projects

Chapter 6—Resources

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what its benefits are, and how it is related to other current educational reforms, including standards-based education.

Next, we introduce the curriculum integration planning framework developed by staff to guide the process of creating integrated science/social studies/service learning units for use in the middle school. We also discuss **how** to use this framework in the planning process, providing guide questions and examples to clarify the process. A section of "helpful hints" for planning and implementing integrated service projects concludes the chapter.

In Chapter 4, we describe several of the integrated units developed in this project, including the two staff-developed demonstration units and six teacher-developed units. While these projects may not fit your community and its needs, they can provide useful examples of how science, social studies, service, and—in some cases—other disciplines can be integrated. In the event that a unit does fit your community, we have provided information on how to get more details about each unit.

Because assessment is such an integral part of teaching and because assessment of integrated units with multiple outcomes is complex, we next provide a chapter on assessing your integrated service learning unit. Special attention is given to using a range of assessment tools and to communicating expectations to students, things that we think are critical to authentically assessing an integrated science/social studies/service unit.

The book concludes with a listing of resources that we believe would be useful to teachers wanting to learn more about service learning or begin more detailed planning for implementation. We have included a wide range of materials, which—though not exhaustive—could provide the core of an excellent library on service learning in the middle school. We have also listed some of the many organizations that can provide assistance in learning more about this exciting field.

Chapter 2

An Overview of Service Learning

The ideal of service is the basis of all worthy enterprise.

Principles of Rotary, I, 1905

What Is Service Learning?

Kaneisha has wanted to be a doctor since she was in elementary school. Now, as an eighth-grader, she thinks it is time to start finding out what being a doctor is really like. She and her parents decide that a good way to get information and help other people at the same time is to volunteer to work at the local clinic for low-income families. When Kaneisha talks to the manager of the clinic, they put her to work Wednesdays after school and on Saturday mornings. She will help patients check in when they arrive at the clinic and play with children while their parents are in with the doctor.

James and SuLynn are both in Ms. Birnberg's seventh-grade earth science class. This quarter, they have been studying issues related to waste disposal; some of the concepts they have studied are biodegradability, recyclability, water table, permeability, and appropriate technology. Now, small groups of students are designing service activities in which they will apply some of what they have learned about waste disposal. James and SuLynn have an idea they hope the other members of their group will like: they want to write and produce a play about recycling that the group can present at elementary schools. All the groups will later write about and discuss their service experiences.

As part of Mr. Trujillo's eighth-grade civics class, each student must take part in five hours of service activities. Darnell and Rafael are best friends and would like to do their service activities together. Right now, they are having trouble deciding between working at a senior citizens center, which Darnell wants to do, and taking part in a park and neighborhood clean-up, which is Rafael's idea. Mr. Trujillo doesn't care which activity they do, as long as they complete the required five hours and a

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reflective writing activity to be done after they have finished their service.

Which of these young people are involved in service learning? How would we describe what the other students are doing? Different people involved with youth service activities define terms differently. While not everyone would agree with us, according to the definitions we have used in this project, Kaneisha is involved in volunteerism, while Darnell and Rafael are taking part in school-based community service and James and SuLynn are involved in service learning.

What are the distinctions between these activities? Let's look first at the longstanding tradition of volunteerism.

Volunteerism

Throughout U.S. history, volunteerism has been a constant theme. Volunteers have contributed to the lives and well-being of the people of this country as far back as the Pilgrims. Alexis de Tocqueville's *Democracy in America* described volunteering as a dominant cultural characteristic as early as 1831. Too, during every war fought by the United States, voices have been raised in support of domestic volunteerism and national service. William James, writing in the early 20th century, called for "a moral equivalent to war" by suggesting that Americans adopt the methods and discipline found in U.S. military to develop an "army" of civilian volunteers to work for the betterment of society.

Volunteerism refers most typically to people who perform some service or good work of their own free will and without any form of compensation. For example, a person who each week spends time helping recently arrived immigrants learn the English language and is not paid in any way for the service is said to volunteer his/her time and expertise. Many people volunteer through such organizations as church groups, service clubs, Boy and Girl Scouts, and 4-H groups.

Community Service

Community service is best understood as volunteering in the community for some form of external compensation. In the school setting, community service most often describes the practice of students' providing service for credit or to meet a graduation requirement. For example, in many high schools throughout the nation, students must perform some number of hours of community service in order to qualify for graduation. Thus, a student required to accumulate 60 hours of community

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service in order to graduate might "volunteer" a few hours of time after school each week to assist in a nursing care facility, hospital, half-way house, soup kitchen, and so on. The student, and his/her community agency contact, keep track of the number of hours and submit them to a school authority. After securing the 60 hours, the student "check-offs" this requirement and becomes one step closer to graduation.

Community service also describes stipended service work programs such as the Peace Corps and Americorps, as well as a type of punishment used by the justice system in lieu of prison or jail time. Because of this connection, some practitioners now choose not to use the term. However, they may mistakenly employ the term *service learning* to describe community service.

Service Learning

In schools, service learning is the next generation of community service and volunteerism efforts. Because service learning emerged so rapidly out of the community service movement, the two are often confused, and the terms used interchangeably. However, its links to the academic curriculum make service learning more educationally sophisticated than community service programs.

In contrast to community service, service learning is a teaching method that combines academic content with direct service experiences in which students provide genuine service to their school or community. As with any teaching method, service learning is a means by which teachers help students attain new knowledge, skills, and attitudes. Through service activities, students use the content learned in class in authentic settings. This new context gives what students have learned in the classroom new and deeper meaning. At the same time, as students view service to the school and community as important, they view themselves as important, too. Thus, the experience promotes the development of active civic participation and responsibility, as well as enhanced self-esteem.

The following are some of the ways in which service learning is a unique experience for students, teachers, and the community:

For Students:

- Service learning programs involve students in extensive orientation and training experiences, as well as in planning the service experience.

Often-Quoted Definitions:

Service learning is...

a teaching method that connects meaningful community service experiences with academic learning, personal growth, and civic responsibility—National Youth Leadership Council.

a method under which students learn and develop through active participation in thoughtfully organized service experiences that meet actual community needs and are coordinated in collaboration with the school and community—National and Community Service Act of 1990.

the authentic engagement of students in addressing unmet needs in their school and larger community, and advancing learning and performance outcomes in specific subject areas, particularly, but not exclusively, citizenship—National Education Goals Panel Subcommittee.

- Service learning programs involve students in meaningful service experiences that enhance and support classroom learning and activities.
- Service learning helps students bridge the gap between "school learning" and real-world problems.
- Service learning provides students with opportunities to engage in structured reflection about their service experiences.

For Teachers:

- Service learning is an instructional method, supported by clearly defined and stated learner outcomes.
- Service learning requires teachers to develop complex linkages between subject content and real, engaging, and meaningful service experiences in the community.
- Service learning is a valuable, but complex and time-consuming, approach to educational change and reform.
- Service learning programs demand that teachers assume the role of facilitator and mentor throughout the experience.

For the Community:

- Community agencies and contacts (those with whom students work in providing service) assume a share of the responsibility for program planning and student supervision.
- Community agencies and contacts form new and supportive partnerships with schools.
- Community agencies and contacts assist in defining the community needs to be addressed through the service experiences.
- Service learning programs often help widen perspectives and change views that various community members have about schools and young people.

Some of service learning's benefits for students, teachers, and communities are implicit in the above lists of its features. However, the benefits for middle school students and teachers are substantial enough to deserve greater attention.

Curriculum will be meaningful in service learning since students will identify problems and/or issues that are important to themselves. When students are given the opportunity to make decisions, they will become more active participants rather than passive ones in the learning process. The curriculum will also allow the students to develop their higher order thinking skills by having them use organizational, problem-solving and communication skills.—Barbara Shibayama, Nanakuli High and Intermediate School, Waianae, Hawaii.

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What Are Service Learning's Benefits to Middle School Students and Teachers?

Advocates of service learning have long argued that it is particularly useful in meeting the needs of middle school students and teachers. Indeed, research on service learning has indicated that such programs can improve academic learning for all students while contributing to the personal and social development critical at the middle school level. Effective service programs have a strong impact on student problem-solving ability and significantly affect attitudes toward school, adults, and the community.

Educators have categorized the benefits to students in a variety of ways. For example, the Minnesota Department of Education has organized learner outcomes into three categories: personal growth and development, intellectual development and academic learning, and social growth and development (see Figure 2-1). Others have categorized benefits into the familiar rubric of knowledge (deeper understanding of content areas), skills (problem solving, working collaboratively, and citizenship skills), and attitudes (empathy, self-efficacy, participation). However the benefits are categorized, middle school students clearly realize growth in several areas.

What about middle school teachers? Teachers in middle schools—schools characterized by a philosophy and programs that address the specific needs and learning styles of early adolescents—face many challenges. They work with high-energy students who are often distracted from learning by the rapid changes in their own bodies. In addition, the middle school philosophy, while it has been gaining widespread acceptance over the past 15 years, requires new instructional approaches teachers may not have used previously or been trained to use and types of materials still not readily available from publishers. Although service learning is not a panacea for these teachers, it can certainly help them implement the middle school philosophy and work successfully with early adolescents.

To examine why service learning is so well suited to the middle level, let us look first at the middle school philosophy. Among the essential characteristics of middle schools are interdisciplinary learning and team teaching; flexible scheduling; emphasis on decision-making and problem-solving skills; use of varied instructional approaches; a program that encourages exploration and personal development; and a positive and active learning environment (Hurd et al. 1981).

We wish to nurture multicultural awareness and respect for diversity. The old adage that "children learn what they live" becomes a powerful experience in a service learning program. By allowing students to sample perspectives outside of their individual life experiences, we lend dramatic context to their classroom learning as well as enhance their empathy and respect for worldviews other than those they've been exposed to thus far.— Deb Wearner, Ken Caryl Middle School, Littleton, Colorado.

Figure 2-1
Sample Service Learning Outcomes:
Minnesota State Department of Education

Personal Growth and Development:

1. Students will increase their sense of personal worth and competence by participating in and taking responsibility for youth service activities within the school or within the larger community.
2. Students will gain a better understanding of themselves by participating in and reflecting on service activities that present new experiences or challenges.

Intellectual Development and Academic Learning:

3. Students will understand how to apply academic knowledge and skills to real problems.
4. Students will become more motivated toward learning based on the needs they experience while participating in youth service.

Social Growth and Development:

5. Students will become more concerned for the welfare of others and more committed to being socially responsible.
6. Students will gain a better understanding and appreciation of people with diverse backgrounds and life situations.
7. Students will increase knowledge of career opportunities, especially in service-related fields (Richardson 1989).

One of the difficulties in creating true middle schools (rather than renamed junior highs) is that changes in curriculum and instruction lag behind the structural changes. Teachers need materials and programs that enable them to adopt an interdisciplinary approach and provide instruction as a team. They also need a wide variety of participatory and interactive teaching strategies, including cooperative learning activities and experiential education programs capitalizing on students' natural activity levels and integrating physical activity with hands-on instruction.

Calls for reform in specific curriculum areas have echoed these needs, describing programs that appeal to early adolescents and maximize their learning potential. For example, the report *Science and Technology Education for the Middle Years: Frameworks for Curriculum and Instruction* indicates that science content at the middle level should reflect a relation to the life and world of the student; a context for presenting new knowledge, skills, and attitudes; use of major conceptual themes to

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link subjects, topics, and disciplines; a focus on depth rather than breadth of topics; extensive use of laboratory-oriented activities, field studies, and informal educational environments; and an opportunity to learn reading, writing, speaking, and math skills in scientific and technological contexts. The report further suggests the following as fundamental to successful instruction in middle school science: a variety of strategies; the accommodation of different learning styles and developmental levels; cooperative learning; group problem solving; regular feedback from the teacher; and hands-on approaches (Bybee et al. 1990)

Current education reform efforts emphasize a student-centered curriculum, coupled with integrated theme work. These concepts go hand-in-hand with service learning in a very concrete way.... Students need to have a reason for learning and service learning takes them through a process that teaches them the meaningful connection between themselves, their school, and their community—Kati Draper, Duniway Middle School, McMinnville, Oregon.

Service learning is an approach that can help teachers develop programs that include the elements described above. Among the specific strengths of the strategy in helping implement the middle school philosophy and achieve curricular reform are:

- The "learner as doer" moves to the center of the educational stage. Teachers and students share in learning, with students encouraged to assume responsibility for their own learning.
- Service learning enables youth to link schooling to issues and questions of significance to themselves. Students learn to ask significant questions and to generate rather than memorize the answers to these questions.
- The student's own community becomes a learning laboratory. Learning is authentic—that is, students are called upon to relate and apply subject matter from classroom material in a variety of disciplines to identifiable and significant community concerns.
- Learning is expanded and integrated, reinforcing basic skills, developing higher order thinking skills, and integrating knowledge, attitudes, and skills.

Teachers who have implemented service learning programs have also found that their relationships with students change, becoming richer. Teachers and students achieve partnerships that enhance students' commitment to learning. Close relationships between teachers and students is another aspect of the middle school philosophy.

Can Service Learning Help Teachers Meet National and State Standards?

Today, the standards movement is placing more demands on teachers at all levels, demands that must be considered in deciding when and how to implement service learning. By reinforcing

students' understanding of content presented in the classroom, service learning holds promise to help students learn any content, including content specified in standards, more deeply and authentically. For instance, students who participate in planting a native plants garden will have deeper understanding of fundamental concepts related to population, ecosystems, diversity, and adaptation—all topics mentioned in the science standards—than they would have if they had simply read about them in a science textbook. Yet service learning's links to the standards are more complex than simply serving as a facilitating strategy. To examine these links, let us examine the standards movement in a bit more depth.

The standards movement got its impetus from a joint 1989 effort of the National Governors Association and then-President Bush to articulate national educational goals. In 1992, Congress adopted these goals and provided for the development of content standards as a means of encouraging and evaluating student achievement.

Advocates of standards have argued that specification of standards—what students should know and be able to do as a result of their school studies—is an effective way to address the fact that American students do not know as much as adults believe they should (and as students in other countries are reported to know). On the other hand, critics of the standards movement emphasize that the content standards have the potential to create unidimensional test-driven teaching and learning, deemphasizing personal and interpersonal skill development.

The debates regarding the effects of a standards-based approach to reform notwithstanding, since 1992, national standards have been developed in science, English/language arts, mathematics, geography, history, civics, integrated social studies, foreign languages, and other subject areas. Many states are also developing standards, either as requirements for local districts or as models for standards to be developed locally.

In the following discussion, we focus on examples drawn from the standards in science and integrated social studies, although connections with service learning could certainly be drawn to standards in other areas as well.

The *National Science Education Standards* document (National Research Council, 1986) outlines six types of interrelated standards for the improvement of science education:

- Standards for Science Teaching
- Standards for Professional Development for Teachers of Science

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- Standards for Assessment in Science Education
- Standards for Science Content
- Standards for Science Education Programs
- Science Education System Standards

An examination of each of these sections reveals no direct references to service learning. However, as the examples in Figures 2-2, 2-3, and 2-4 demonstrate, there are several instances in which service learning outcomes have been folded into one of the science standards or can be used as a means of achieving one of the standards.

Figure 2-2
Links Between Service Learning and Science Teaching Standards*

Science Teaching Standard A	**Service Learning Outcomes**
Teachers of science plan an inquiry-based science program for their students. In doing this, teachers select science content and adapt and design curricula to meet the interests, knowledge, understanding, abilities, and experience of students.	Service projects require a variety of skills and approaches, allowing students with a wide range of learning styles to succeed and learn. Many service projects use inquiry approaches as students investigate problems and solutions.
Science Teaching Standard B	**Service Learning Outcomes**
Teachers of science guide and facilitate learning. In doing this, teachers challenge students to accept responsibility for their own learning.	Developing service projects engage learners in setting their own learning goals in direct relation to the world around them. The teacher acts as a facilitator.
Science Teaching Standard D	**Service Learning Outcomes**
Teachers of science design and manage learning environments that provide students with the time, space, and resources needed for learning science. In doing this, teachers identify and use resources outside the school and engage students in the design of the learning environment.	Service learning connects school and community in new and positive ways. Youth are involved in the planning of service learning experiences.

*Standards excerpted from *National Science Education Standards* (Washington, DC: National Academy Press, 1996).

Figure 2-3*
Links Between Service Learning and Science Content Standards*

Science Content Standard 7 **Science in Personal and Social Perspectives**	**Service Learning Outcomes**
An important purpose of science education is to give students a means to understand and act on personal and social issues.	Service programs engage students not only in learning about social problems, but also in doing something about them.

Figure 2-4*
Links Between Service Learning and Science Education Program Standards*

Science Education Program Standard B	**Service Learning Outcomes**
The program of study in science for all students should be developmentally appropriate, interesting, and relevant to students' lives; emphasize student understanding through inquiry; and be connected with other school subjects.	An effective service learning program engages students in responsible and challenging actions for the common good. Young people who serve learn wholistically. All aspects of intelligence contribute to the development of self.
Science Education Program Standard D	**Service Learning Outcomes**
The K-12 science program must give students access to appropriate and sufficient resources, including quality teachers, time, materials, and equipment, adequate and safe space, and the community.	Service learning enhances what is taught in the school by extending student learning into the community.

*Standards excerpted from *National Science Education Standards* (Washington, DC: National Academy Press, 1996).

In 1994, the National Council for the Social Studies published *Curriulum Standards for the Social Studies: Expectations of Excellence*. At the same time that standards were being developed in many of the social science disciplines (history, geography, civics and government, economics) the social studies standards were developed to address overall curriculum design and comprehensive student expectations, while the individual discipline standards were to provide focused and enhanced content detail.

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Ten themes form the framework of the social studies standards:

- Culture
- Time, Continuity, and Change
- People, Places, and Environment
- Individual Development and Identity
- Individuals, Groups, and Institutions
- Power, Authority, and Governance
- Production, Distribution, and Consumption
- Science, Technology, and Society
- Global Connections
- Civic Ideals and Practices

As was true in the case of the science standards, service learning is not directly referenced in the social studies standards. However, many of the service learning outcomes are represented in the social studies standards either in support of or as a means to achieving specific standards (Figure 2-5).

Figure 2-5
Links Between Service Learning and Middle Grades Social Studies Themes and Standards*

Theme **Individual Development and Identity**	**Service Learning Outcomes**
Social studies programs should include experiences that provide for the study of individual development and identity, so that the learner can:	
describe personal connections to places associated with community, nation, and world.	Service learning helps students become invested in their communities by working with community groups or agencies to improve community life.

*Standards excerpted from *Expectations of Excellence: Curriculum Standards for Social Studies* (Washington, DC: National Council for the Social Studies, 1994).

Figure 2-5 Cont.

Individuals, Groups, and Institutions Social studies programs should include experiences that provide for the study of interactions among individuals, groups, and institutions, so that the learner can:	
apply knowledge of how groups and institutions work to meet individual needs and provide for the common good.	Service learning helps develop a greater sense of commitment beyond self, a broad base of experience and community connections, and helps foster an ethic of commitment and a sense of membership in the community.
Power, Authority, and Governance Social studies programs should include experiences that provide for the study of how people create and change structures of power, authority, and governance, so that the learner can:	
examine persistent issues involving the rights, roles, and status of the individual in relation to the general welfare.	Service learning empowers youth to become service-oriented citizens and youth leaders.
Civic Ideas and Practice Social studies programs should include experiences that provide for the study of the ideals, principles, and practices of citizenship in a democratic republic, so that the learner can:	
practice forms of civic discussion and participation consistent with the idea of citizenship in a democratic republic.	Service learning helps students become involved in their communities through service activities. The process of looking at problems and considering solutions involves students in civic discussions that produce plans of action.
examine standards designed to strengthen the "common good," which consider a range of options for citizen action.	Service learning contributes to community development and revival. As youth contribute through service to the common good, they are seen to be one of the community's greatest resources.

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The national standards are affecting the foundations of education in many states. The state standards being developed, as well as standards being developed by local districts, are being strongly influenced by the national standards. Thus, educators who wish to make connections between service learning and state or local standards should readily find such connections.

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Chapter 3

Designing and Implementing a Service Learning Program

Things in school are always separated out. They should be together.

Middle school student, quoted in
The Middle School and Beyond, 1992.

Characteristics of Effective Service Learning Programs

To realize the impressive educational potential described above, service learning programs must include certain key elements, including:

- The programs must accomplish significant, necessary, and measurable service.
- Program goals and mission statements must reflect clear institutional commitment to the service program.
- The programs must gain strong community support and involvement.
- The programs must feature a well-designed and articulated curriculum for service, including preparation, supervision, and active student reflection on the experience.
- The service experience must build upon and contribute to understandings developed in the academic curriculum.

Moreover, the most successful service projects tend to be those developed and implemented at the local school site, with real authority to design and administer programs vested in the school and its staff, with input and ownership by students. Site-based design and ownership and responsiveness to the community and its real issues and needs are all critical. Thus, teachers and school building staff should assume the lion's share of the responsibility for building and integrating service learning into the curriculum.

After visiting the Rainbow House for Children with Pediatric AIDS, I had very mixed emotions. I was so scared of catching the virus that I was afraid to touch anything. Then I realized that I was part of the society that didn't have enough information about AIDS—that was too scared to really confront it. Jenny, the director, gave me more information about AIDS so that I could gain a new perspective about what this disease is really all about. Going to Rainbow House was one of the most incredible experiences of my life...—Tracy B., grade 8, Campus Middle School, Englewood, Colorado.

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This development and implementation process requires time, an eye for detail, and patience. Some teachers have suggested that developing a service learning program is similar to putting together a class field trip, times ten. Certainly, service learning is not something one can accomplish in an afternoon. Difficult as it may be, however, most of the teachers who have worked to provide service learning experiences for their students feel as if the time and effort were well spent.

With an increasing interest in service learning programs, several program design models have been developed. Most of the models outline a general step-by-step process for the teacher. Teachers are very busy people. If they are going to become involved in any educational innovation, they must be provided with as much assistance as possible. Knowing this, the service learning project staff designed a comprehensive framework to guide teachers in the production of their service learning units. This framework provides an overall outline of the process, breaks the process down into manageable tasks, and provides key points and key questions that must be addressed and answered before moving to other tasks. Experience tells us that teachers who followed the framework were more focused, saved time, and developed more successful projects than those who did not have access to it.

In almost everything written about school-based service projects recently, a section on "helpful hints" is included. We are no exception. Titled **The Service Experience: Programmatic and Logistical Considerations**, the "hints" section provided in this chapter is based on our three-and-one-half-year experience as service learning training providers. The service hints are offered here to help the reader develop and facilitate the most successful service learning unit possible.

The Curriculum Integration Planning Framework

Figure 3-1 presents the curriculum integration planning framework developed by the project staff. While the framework is designed to be comprehensive, it is not meant to be all-inclusive. Local circumstances and individual needs will always determine the questions to be asked and answered in the planning process.

As you can see, the process begins with determining the topic or theme for the unit. When a topic has been selected, the content and skills to be developed through the unit are considered, and the students and teachers to be involved in the project are identified. Also identified are the administrative support that will be required and the community resources that will be necessary to completion of the project.

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The next phase of the process involves writing goals for the unit, including academic (content and skill) goals, as well as service goals. In conjunction with writing goals, teachers begin developing their evaluation plan (more information about evaluation is presented in Chapter 5).

The next steps in the framework are identifying possible classroom and service activities and then developing those ideas into an outline of the unit. Once the outline has been completed, logistical planning for service must be completed and weekly/daily teaching plans written.

You are probably thinking that identifying the steps in developing an integrated unit does not make the process easier. This may be true, but it does provide direction for beginning and carrying through the process. Further direction is provided in Figures 3-2 through 3-7. Each of these figures takes one or more related steps in the development process and presents questions you must consider in working through those steps.

For some teachers, the process outlined in this framework will be a perfect "fit"—the format will work smoothly for you. Other teachers will find their own methods and formats for planning integrated units. Even within a different format, however, the questions and issues in Figures 3-2 through 3-7 will need to be considered in order to create a successful unit.

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Figure 3-1
Curriculum Integration Planning Framework

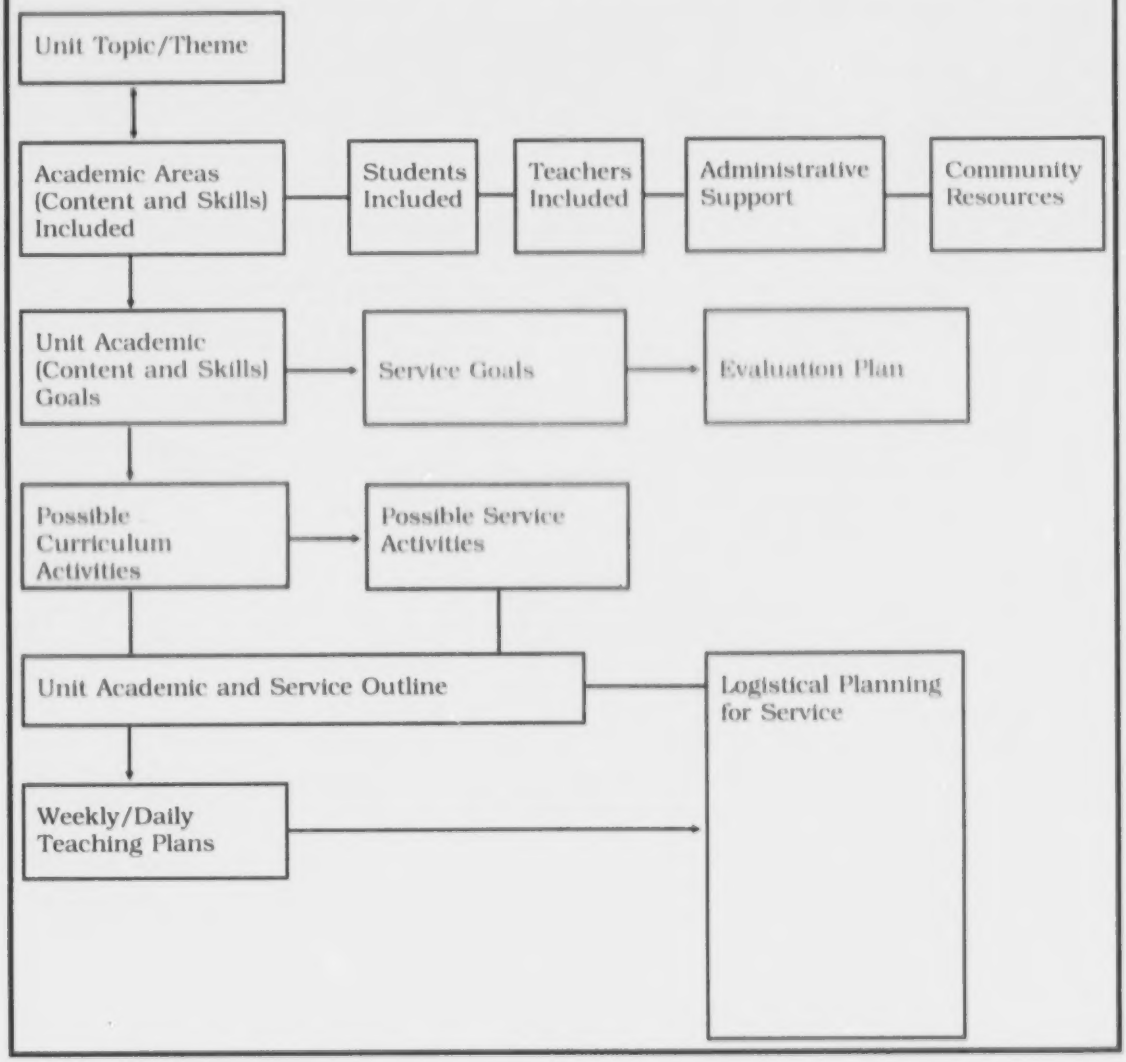

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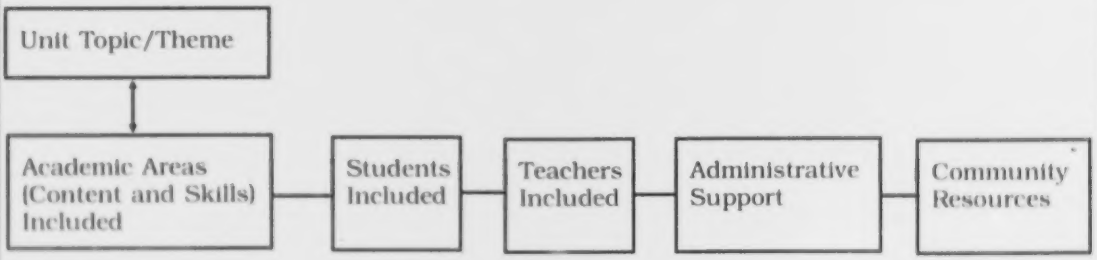
Figure 3-2
Questions to Consider: Initial Planning Phase



Unit Topic/Theme

How will you decide on the topic or theme of your integrated service unit?

- Does it flow naturally from the existing curriculum?
- Will you survey students regarding the service component?
- Will you conduct a needs assessment in the community to identify specific problems or issues?
- Will you consider the unique philosophical characteristics of your school or school district?
- How will your unit enhance or enrich the existing curriculum?

What is the topic or theme of your integrated service unit?

Academic Areas Included

What academic (content and life skills) areas do you plan to include?

Is there a real fit between subject areas or disciplines chosen for the unit?

In what ways do you hope that student learning will be enhanced in each academic area?

How can you develop/facilitate student leadership skills in the context of the project?

What other skills can be developed through this unit?

Students Included

What students will be involved in the unit project?

- Are the students involved in the unit representative of the diverse school or school district student population?
- Does the students' age/developmental level place any constraints on your planning?

How can you best assure that students will "buy-in" to the unit topic or theme?

Figure 3-2. Cont'd.

Teachers Included

Who are the teachers involved in the project? Has each teacher fully committed to the success of the project?

How will you gain the support of teachers who are not directly involved in the project?

How will you gain support from other staff?

- Librarians
- Counselors
- Custodians
- Cafeteria Workers
- Curriculum Specialists
- Transportation Personnel
- Other

Administrative Support

Is school board approval and/or support needed?

Whose support in the administrative hierarchy (district and building levels) do you need?

What types of support do you need from each?

What are some strategies you will use to insure administrative support?

How will you keep administrators informed of the needs and progress of the project?

Community Resources

What resources are available in the community that might be used to support the project?

What resources do you need from the community?

Will you involve the service recipients in the planning of the project?

How will you go about accessing the resources for your project?

How can you inform the community (including parents) about your project and any needs you might have?

How might you secure funding for special needs? What grants and state support are available?

Should parents be invited to participate?

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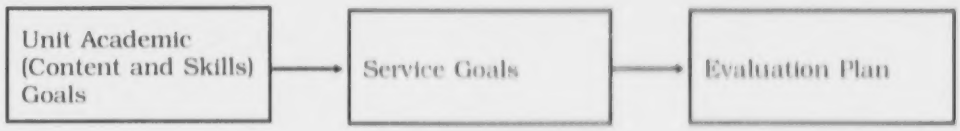
Figure 3-3
Questions to Consider: Goal-Setting Phase



Unit Academic Goals

What student goals and objectives do you plan to achieve in each academic area included in the project?

- Knowledge goals
- Skill goals
- Attitude goals

How do your goals align with national, state, or district standards for each of the academic disciplines included in the project?

What student input would be appropriate in setting the academic goals?

Service Goals

What do you want students to gain from their involvement in the service learning component of the project?

What are your service goals?

- For students
- For the service partner
- For the community
- For the school or school district

What student input would be appropriate in setting the service goals?

Evaluation Plan

What areas of the project need to be assessed?

- Student academic assessment
- Student service assessment
- Community partnership assessment
- School/community relationship assessment
- Parent assessment

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Figure 3-3. Cont'd.

How will the project be assessed?

- Pre/post assessments
- Questionnaires
- Student reflection
- Student Portfolios
- Surveys and checklists
- Writing projects
- Projects and performances

Who will develop the assessment process?

From whom will data be collected?

How will the evaluation data be used?

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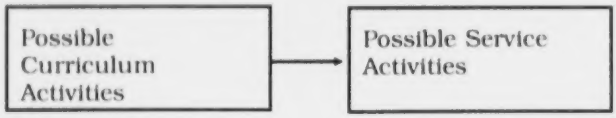
Figure 3-4
Questions to Consider: Identifying Possible Activities



Possible Curriculum Activities

How will you organize or structure your curriculum in order to best achieve your academic goals?

What resources can you identify to help develop the curriculum unit?

What specific activities, readings, media, and so on, can you incorporate into the unit?

What resources do you need to achieve the academic goals of the unit?

What specific curriculum pieces and/or learning strategies do you need to achieve the goals of the unit?

What roles will students have in planning and implementing the academic unit?

Possible Service Activities

What types of service learning activities enhance your academic goals? Is there a clear and supportive relationship between academic and service goals and activities?

Are some types of service activities more likely to be successful than others?

- Are there certain limitations or realities that you need to pay attention to?
- Can you assess the cost/benefit ratio of various service learning activities?
- What do students have to say about various service learning activities?
- Are the activities challenging, socially important, and performed on behalf of the common good?

What service learning activities will be included in your curriculum unit?

- Have you made sure that those with the needs have been involved in defining and planning for the redress of those needs?
- Is there a strong commitment from all parties to support and sustain the effort?

What kind of training will students need to maximize the service experience?

How might you enrich or extend the service experience for those students who want to expand their participation in the project?

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Figure 3-5
Questions to Consider: Logistical Planning for Service

Logistical Planning for Service

What individuals and organizations do you want involved?

- Who is your contact person?
- Do you want to form a project advisory committee?
- What is the role for parents?
- Who at your school or school district needs to be involved? How?

How long will the activity take?

Do you have transportation needs?

What are the liability factors? How do you plan to resolve the liability factors?

Who will assist you with the service learning component?

- Are all responsibilities clarified and articulated?
- Are adult guidance and supervision roles clearly defined?

What materials will you need?

Do you need additional funding? How will you secure that funding?

How will you prepare students for the experience?

How will you critically debrief/reflect upon the experience?

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Figure 3-6
Questions to Consider: Outlining the Unit

Unit Academic and Service Outline

How will you format a weekly and daily outline of your unit activities?

Are all instructional and service activities identified?

Are the logistical details for service activities outlined?

Does the outline provide a quick yet complete overview of your curriculum unit?

If questions emerge from your unit outline, how do you plan to answer or resolve them?

What are the strengths of your curriculum unit?

Figure 3-7
Questions to Consider: Writing Teaching Plans

Weekly/Daily
Teaching Plans

What will you actually be doing each week and day that you are teaching this unit? Be specific and include copies of all activities, readings, and so on.

Can someone who is not familiar with the unit pick it up and use it in their classroom?

Does the unit have a logical flow? Are weekly and daily activities in the science and social studies classrooms well coordinated and mutually supportive?

Do your plans include effective openers, engaging and varied hands-on activities, and opportunities for student reflection?

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The Service Experience: Programmatic and Logistical Considerations

During the three and one-half years of the project, the staff assisted in the design and implementation of 18 integrated science, social studies, and service units. In this section, we provide a discussion of the most important lessons we learned about the service component of the units. We hope that by sharing these experiences, we can help others avoid some of the pitfalls, frustrations, and uncertainties we were confronted with as we entered into the new territory of service learning.

Remember that teachers should expect to play the role of facilitator during the planning and implementation of the service project. If students are provided an opportunity to assume responsibility for the activity, student "buy-in" and over-all skill development will increase.

Preparing for the Service Activity

Involve students in leadership roles throughout the process of selecting, planning, conducting, and evaluating the service project. Once students understand the curriculum context of the service activity, involve them in the selection of the service project. Consider having students conduct a community needs assessment to determine potential service projects. Several strategies can be used to conduct such a needs assessment. Students can conduct a survey regarding local issues or problems and possible solutions. They can analyze the issues covered in the local newspaper and talk to experts who deal with these problems on a daily basis. Students can also explore the neighborhood or community to look for problems and unmet needs.

When needs have been identified, you and the students must identify a project or projects that meet those needs. One factor in choosing a project is student expertise. The skills students have to offer can be important in designing a successful project. However, student expertise should not overly constrain your thinking. Once a project has been selected, it is a good idea to provide a training program for students that focuses on needed skills, such as how to interact with the public. The training might cover telephone skills, letter-writing skills, the importance of follow-through and follow-up, and so on.

Another useful step in choosing a project is to identify organizations and agencies to work with by consulting your phone book, by calling your local chapter of the United Way, by calling

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service clubs such as Kiwanis or Rotary, or by checking with local government agencies. It is important to involve the organization or agency selected as a service partner in all phases of the project. Those with the need should be involved in the planning, implementation, and evaluation of the service activity. In the planning stages of the service project, it is a good idea to have students research the service partner. Students should learn as much as possible about the partner before engaging in the service activity.

When you and your students have chosen a project, analyze it to be sure that the project can actually be accomplished and that it fits within the context of the existing school culture. For example, if activities that take students off campus generally meet resistance, plan an activity that takes place at or very near the school.

School or school district administrative support is crucial to the short- and long-term success of the service project. Communicate often and in detail. Any liability issues, including transportation, should be brought to the attention of your school or school district risk management specialist. You should ask for written responses to your liability questions.

Parent support is also crucial to the success of the service project. Keep parents informed and invite their participation when appropriate. Kathleen Pasierb, a teacher in Patagonia, Arizona, found that parents responded positively when given detailed information about the service project, including a notice sent home *every* time students left school. Jackie Johnson, a teacher in Englewood, Colorado, has used a newsletter to keep parents informed.

If outside resources will be needed to conduct the service project, you are advised to secure them earlier rather than later. It is our experience that, most of the time, you need only ask and the resource will be made available. This is particularly true of parents and businesses in the community, who like to see young people involved in positive activities.

Publicity for your project is beneficial to your ongoing work and to the school. Publicity is described in more detail at the end of this hints sections.

Be sure that you arrange for adequate supervision during the service activity and that students, parents, and school administrators are apprised of any possible risks.

When these details seem overwhelming, we have found that a logistical action plan and timeline helps organize the planning

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work. Be sure everyone involved knows who will be involved, when the activity will occur, and where it will occur.

Finally, remember the benefits of meaningful service. Throughout the planning process, help students understand the importance of the service project. Try to devote time to the project each day so as to keep students focused and motivated. Build group cohesiveness through the project by including all students, regardless of ability and background. Each student has something unique to contribute to the experience.

The Service Activity

Most of the work involved with a service learning activity occurs during the planning stage. The key to the success of the activity itself is **NO SURPRISES.** You and the students are encouraged to double and triple check all the details before the actual activity. During the activity itself, be flexible and enjoy the experience.

Try to ensure maximum student participation in the service activity. Encourage participation by those who find it difficult to get involved. Sometimes it helps if you model participation and "team" with reluctant students.

Remind students that the service activity is not "for" the service partner but rather "with" the service partner. This attitudinal difference is very important.

Again, we urge you to document and seek wide publicity for the service activity. The information at the end of this hints section may be helpful in gaining publicity.

Follow-up to the Service Activity

While not as time-intensive as planning for the service activity, follow-up to the activity is equally important. During follow-up, students are provided the opportunity to discuss and share their experiences. The practice of student reflection, whether written or oral, allows students to process and synthesize the information and ideas gained through the service experience. Reflection also provides teachers an opportunity to assess what students have gained from the experience.

Many options are available for structuring student reflection. Journaling is one of the most common devices, but other kinds of writing activities can also be effective. Writing an essay, a case study, a script for a media presentation, or an article to be published in the local newspaper can also be used to stimulate

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reflection. Discussion—from one-on-one conversations to whole-class discussion—can also be an effective way for students to reflect on the service experience and the learning that occurred because of it. Teaching others about the issue addressed—whether in person or through a media presentation—is still another option.

Remember that students need instruction in reflection, as well as many opportunities to practice. A one-time reflection activity at the end of an integrated unit will not produce the quality metacognition that benefits students most. Opportunities for reflection should be built in throughout the unit so that self-evaluation and thinking about learning become habits.

Assessing the impact of the project as well as identifying the strengths and weaknesses of the structure and logistical planning of the project are critical to creating a sustained organizational commitment to the project. As in all educational endeavors, program and impact evaluation must not be overlooked.

One of the goals of the service project is to build community relationships. Following the project, students should be instructed to write thank you letters and generally follow-up with the community contacts developed throughout the project. In smaller communities, newspapers are often willing to publish thank you letters, which then also generates publicity for the project.

Many service learning guides call for a celebration following the service activity. We do not ascribe to the idea of celebration because it makes the service activity appear as if it is something special or unusual. We believe that the service activity is a step towards helping students internalize service as a part of every day life, an essential element of a life well lived. We do, however, believe that recognition should be provided to students and suggest that teachers identify ways to recognize the good deeds performed by the students. For example, teachers at North Middle School in Aurora, Colorado, have used certificates to provide recognition. An award presented to the school by the city's Open Space Board also provided an authentic form of recognition for students' work.

Seeking Publicity for the Project

Service learning projects are naturals for local press coverage. Several tools will be useful in getting positive publicity for your projects: news releases, public service announcements, and photo opportunities. We present some tips for using these tools below.

SERVICE LEARNING PROJECT
Sand Creek Project

Joseph Peal

In recognition of your contribution to the City of Aurora through community service.

Linda Strand, Manager
Parks, Recreation and Open Space

North Middle School
Aurora Public Schools

Time ○ Treasure ○ Talent

1995

City of Aurora Colorado

Aurora Open Space Board
Annual Award

Presented To

North Middle School
Sand Creek Service Learning Project

Timothy A. Gregory
Aurora Open Space Board

Paul E. Tauer
Mayor, City of Aurora

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News Releases and Public Service Announcements: News releases and public service announcements are used to announce events or developments that are *newsworthy* and *timely*. Your primary purpose in writing a news release or public service announcement is to get it printed or read by the local press. A secondary purpose may be to generate interest at your newspaper or radio or T.V. station in doing a lengthier story on the event or program covered in the release.

You'll improve your chances of achieving these purposes if you follow a few basic rules in writing, typing, and sending or delivering your news release. First, state the most important fact in your opening sentence. Ask yourself, "Why am I writing this? If the answer is "to invite the public to the opening of a native plant garden built for the school by your class," your first sentence should be:

> Crestview School invites the public to the opening of the school's new native plant garden at 5 p.m. on May 2.

Give the who, what, where, when, why, and how in the remainder of the first paragraph. For example, the native plant garden release might continue with the following sentences:

> Seventh-grade students at the school designed and planted the garden as part of a science unit on biodiversity. At the dedication, students will explain how local residents and Crestview students will be able to enjoy the garden as they learn about the importance of native plants and why they are well suited to this geographic area. The garden is on the west side of the school, which is located at 1174 Maple Drive.

Arrange the rest of the facts in descending order of importance. This strategy allows the editor to cut the release to fit the space available. In arranging the facts, think not only about your purpose in writing the release, but also the public's interest in learning about the event or development.

Be accurate, precise, and understandable. Use active verbs. Eliminate sentences that begin with "There were" or "It is." Do not use educational jargon. Saying that service learning projects help educators achieve objectives related to political efficacy may seem perfectly normal to you, but most editors will cut the sentence and you will have lost the opportunity to say something important about service learning. If this jargon slips by the editor, the public will probably be confused, offended, or bored by your terminology. Simply saying that service learning

helps students feel they can make a difference would solve the problem.

Be brief. If possible, confine releases for newspapers to one page. Never exceed two pages. If writing a public service announcement for radio or television, be even briefer. Write in a conversational style that will sound natural when read aloud. Try reading the announcement aloud yourself; you should be able to complete it in 10-15 seconds.

Include a glossy, black-and-white photograph with your release. The most-used photos show people doing something. The photo should not show more than six people, however, as identifying them will take up too much space. Do identify each person in the photograph. While photos are obviously not appropriate for radio, television stations sometimes use them as backdrops for public service announcements. Check with your local stations.

Your release should be typed on 8-1/2 x 11 white paper in the standard format expected by editors. This format is shown in Figure 3-8.

Proofread the release to ensure that spelling and grammar are perfect. Then ask someone else to proof it. While the editor will correct errors, you might find your gaffes the subject of an editorial in a slow news week—something no school district can afford.

Check to make sure all the people in your photograph are identified, with their names spelled correctly.

Take the time to find out—by name—the appropriate editor or reporter to receive school-related news releases. In most cases, this will be the city editor or education editor.

Investigate the timing of the paper or station to which you are sending releases or announcements. Radio and television stations may not use announcements unless received a certain number of days before the event being announced. Weekly newspapers or special education or neighborhood sections that appear weekly in daily papers have submission deadlines. Be sure you know what they are and beat them.

Mail your release first class, addressed by name, or deliver it in person. Do not arrive at the paper or station near deadline.

Photo Opportunities: Newspapers are often willing to run pictures of young people involved in the community. This is even more true if a public official or business leader will be involved with the students. When you have such events planned, let the

Figure 3-8
Format for News Releases

Contact: Ms. Cindy Krebbs
Oakdale School District
315 West 11th Street
Oakdale, Any State 00000
555/555-5555

At the top left of the release, put the name, address, and phone number of the source.

At right top, put a release line. Except in rare cases, this should be "For immediate release."

FOR IMMEDIATE RELEASE

Do not give the release a head. Do leave approximately 2 inches between the release and the body for the editor to insert a headline.

Next year, local middle school students will be learning more about and doing more for their community as a result of a National Science Foundation Project in which Oakdale School District has been selected to participate. Through this project, a team of teachers and administrators from the district will develop service learning projects for use in middle school science and social studies courses.

In June and July, team members will travel to Boulder, Colorado, for a four-week summer institute on how service learning can be used to improve teaching in life science and social studies. During the institute, team members will have the opportunity to work with scientists, medical professionals, community leaders, and teachers who have used service learning extensively. The team members are Linda Washington, Jeff Goldman, Pam Watanabe, Cindy Krebbs, and Germaine Dutton.

Use wide margins—at least 1 inch on each side—to allow ample room for editing.

Double space the body if the release is for a newspaper. Triple space if it is for radio or television.

During the 1993-94 school year, team members will involve their students in service learning projects. During the summer of 1994, a second team will attend a similar institute focusing on service learning in earth science and social studies.

Service learning involves students in gathering information in the community and applying that information and classroom learning to a commmunity-focused project. For example, students studying how disease is spread and prevented might conduct a survey to determine what percentage of children in the local community have been immunized. They might then develop an educational campaign about the importance of immunization.

At the end of the release put -30- or ###.

-30-

At the top right of the second page, indicate the page number as shown here.

Service Learning 2 2 2 2 2

If you must go to a second page, put "more" at the bottom of the first page. At the top left of the second page, put a slug line, a brief description of the content of the release.

Do not split paragraphs between the first and second pages.

The Social Science Education Consortium and the Science Discovery Program at the University of Colorado-Boulder are sponsoring the project. The Social Science Education Consortium is a not-for-profit corporation that works to improve social studies education nationwide. Part of the School of Education at the University of Colorado, the Science Discovery Program offers a variety of science experiences for students and teachers. For more detailed information about the National Science Foundation Project, call Project Director Ron Schukar at 303/492-8154.

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press know well in advance by sending an announcement (see Figure 3-9). The announcement should include the following information:

- Date of opportunity
- What the event to be photographed is
- Time and place of event
- Who will be participating in the event
- A brief description of what will occur at the event
- Any restrictions on press coverage
- A contact person, with address and phone number

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Figure 3-9
Format for Announcement of Photo Opportunity

PHOTO OPPORTUNITY

Thursday, May 2

DEDICATION OF CRESTVIEW MIDDLE SCHOOL
NATIVE PLANT GARDEN

West side of Crestview Middle School, 1174 Maple Drive, Center City

5:00-5:45 p.m.

Participants:	Crestview Middle School seventh-grade classes Teachers, staff, and other students at Crestview Residents of surrounding neighborhood
Ribbon Cutter:	Bob Roberts, CEO, Acme Seed Company

Students who designed and created the native plant garden as part of a science unit on biodiversity will welcome visitors. Roberts, whose company underwrote costs of building the garden, will cut the ribbon at approximately 5:15.

Following the ribbon-cutting, students will provide guided tours of the garden, explaining the significance of the plants included.

Newspaper and television photographers are invited to cover the activities at any time.

For more information, contact:

Terri Thomas, Principal
Crestview Middle School
555/555-5555

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Chapter 4

Model Integrated Service Learning Projects

A lot of people think they have to be big dogs to make a difference. That's not true. You just need to be a flea for justice bent on building a more decent home life, neighborhood, work place, and America. Enough committed fleas biting strategically can make even the biggest dog uncomfortable and transform even the biggest nation...

Marion Wright Edelman,
The Measure of Our Success, 1992

Introduction

As we mentioned in Chapter 1, teams attending the summer institutes took part in a demonstration unit that integrated science, social studies, and service and then developed their own integrated projects. The teams pilot taught and evaluated the projects in the school years following the institutes. In this chapter, we provide capsule descriptions of ten of the units and detailed outlines of six additional teacher-developed units, as well as the two staff-developed demonstration units used at the institutes.

As these descriptions make clear, our project focused primarily on science and social studies. However, many teams also integrated other subject areas, and most—if not all—of the projects that focused on social studies and science could easily be adapted to include other subject areas, whether language arts, math, art, drama, or other "exploratory" subjects.

We think it is unlikely that teachers will want to directly replicate these units; they address combinations of curriculum goals and community needs unique to the settings for which they were developed. Rather, we present them as models that can be adapted or simply used as springboards to your own ideas for integrating meaningful service with curriculum goals in science, social studies, and beyond. Inquiries about particu-

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lar projects can be addressed to the persons or schools identified in the description or to the project staff; questions about the two teacher demonstration units should be addressed to the project staff.

Often, the hardest part of developing an integrated service learning project is coming up with the initial idea for marrying content in various curriculum areas. In hopes of stimulating your thinking, we provide the following capsule descriptions of ten projects developed by teachers in our project.

- AAMUU HATSII—For the Love of Mother Earth. Students explore environmental issues facing the Acoma Pueblo in New Mexico. Emphasis is on preserving the Acoma history and environment, restoring respect for mother earth, and working together to restore that which has been taken for granted and lost. Service projects include environmental awareness and pride activities. Sky City Community School, Acoma, New Mexico.
- Land of Plenty? This unit focuses on the limited nature of earth's resources and uses the theme to integrate the core subjects. Topics addressed include definition and availability of resources and human resource wants and needs. Service projects include on-campus recycling and conservation activities. Hendrix and Kino Junior High Schools, Mesa, Arizona.
- Ripples. Students learn about the history of their school neighborhood (Old Colorado City) and the role of Fountain Creek in that history. Students study the ecosystem of creeks and streams and analyze the impact of human settlement on these fragile ecosystems. As a service project, students adopt the portion of Fountain Creek that runs through the school neighborhood. School District 11, Colorado Springs, Colorado.
- Signs Along the Trail. This science/social studies unit involves students in learning about rivers, human settlement, and river ecosystems. Students design, construct, and place flora and fauna identification signs along the Arkansas River Trail. Pueblo School Districts 60 and 70, Colorado.
- Take a Walk on the Wild Side. In this science-based interdisciplinary unit, students examine native desert plant and animal life and the impact of human settlement on the desert species. The service project is to develop a desert nature trail in the school neighborhood. Sunnyslope School, Washington School District, Phoenix, Arizona.

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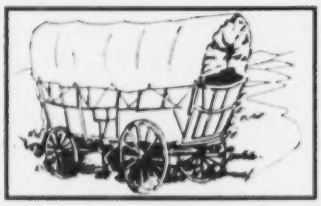
- A Taste of Hominy. In this integrated science and social studies unit, students examine how Native American cultures of the Southwest use and impact natural resources. Service projects include working with neighborhood volunteers to develop native and non-native gardens on school property. Sunnyslope School, Washington School District, Phoenix, Arizona.



- Trails to Colorado: Past and Present. The unit integrates all academic subjects in the study of the impact of human settlement and economic development on the environment. Service activities include educating the community about local environmental problems related to economic development as well as educating the community about those private sector enterprises that are environmentally responsible. Adams County School District 14, Commerce City, Colorado.

- Treasured Trees of Mescalero. The unit integrates all academic areas around the community's respect for and uses of trees. The service project involves students' working with tribal elders to construct park benches out of downed timber and locating the benches throughout the community. Mescalero Apache School, Mescalero, New Mexico.

- Variety Is the Spice of Life. In this science/social studies unit, students examine the ecosystem and the roles and interdependencies of human beings in communities and societies. The service component involves planning and developing native plant gardens at each of the schools. Adams County School District 14, Colorado.

- WEBS (World, Environment, Biodiversity, Service). Students explore the following parallel science and social science topics: the nature of environments and communities; relationships within environments and communities; movement and change within environments and communities; and conflict within environments and communities. Service projects include counting natural populations for the Audubon Society, planting native gardens, and volunteering for the Nature Conservancy. Tortolita Junior High School, Marana School District, Tucson, Arizona.

The Garden Gophers

Site: Patagonia Middle School, Patagonia, Arizona

Contact: Kathleen Pasierb, Science Teacher, P.O. Box 254, Patagonia, AZ 85624; (520) 394-2202.

Community Profile

Patagonia is a beautiful, rural valley community nestled between two mountain islands within the Sonoran desert of Southeastern Arizona. The valley is ideally located along a migratory route for hundreds of species of birds that come to settle in for a day or a season. Thousands of people from all over the world converge on our community to watch the natural spectacle among the cottonwoods of Sonoita Creek, the Sacaton grasslands, mesquite bosques, and the oak and juniper woodlands.

Historically, Patagonia was a mining community where ore was brought to town from the mountains and shipped by rail to distant places. Today, only the old depot remains of that era. The depot is situated along a long and narrow "town park" where the Southern Pacific railroad tracks once were. Adding to the charm of Patagonia is an artisans' cooperative, many historic adobe residences, and friendly and diverse townspeople.

Two school districts are located within our town of 1000 residents—the high school district and the elementary school district. Within the high school are four to five classrooms designated as the Patagonia Middle School.

Unit Background

After some debate among the seventh-grade Community Service Learning Project (CSLP) students, they determined that their "town park" seemed out of place with the rest of the natural environment. Students were aware that habitat had been destroyed in this area to make way for a rail line decades before. They realized the mining era left later generations to deal with the problems associated with habitat alteration. Because students enjoyed learning outside the traditional classroom setting, they visualized the gardens as an outdoor learning lab for themselves and for future middle-schoolers.

The students saw a need to restore the natural community by developing habitat for the benefit of all community members, including wildlife. They wanted to beautify the park for visitor enjoyment. The students' long-term goal was to collect seeds

from the gardens for distribution and planting in the yards of residents who lived along the highway for the purpose of extending the native habitat beyond the park itself. They visualized their project as a way to demonstrate pride in their community. The idea of planting four theme gardens was set in motion.

The seeds had been planted in their minds and, during the next two school years, our students used their funds of knowledge to carry out a complex set of activities to accomplish their goal. They named themselves the Garden Gophers, and their motto was GO-fer-IT!!!! And they did.

Unit Topic

The Garden Gophers unit was designed to support three sets of curriculum guidelines: (1) Arizona Science Essential Skills, (2) Comprehensive plan for Environmental Education, and (3) Patagonia Middle School Curriculum. Topics in the various disciplines are listed below.

Life Science
Endemic Plants
Biodiversity
Botany
Entomology

Social Science
Citizenship
Social responsibility
Leadership/cooperative skills
Economic history
Community activism
Intergenerational relations
Public speaking
Careers

Art
Logo design
Photography
Graphics

Earth Science
Soil conservation
Xeriscape gardening

Physical Science
Physical factors
Restoration of habitat

Ecology
Habitat, community, population
Bioregional studies
Biodiversity

Math
Geometry
Graphing
Monetary transactions

Language Arts
Speech writing
Letter writing
Grant writing

The community issue addressed was to demonstrate pride in community, restore and enhance wildlife habitat, and to share the joy and appreciate four native wildflower gardens with community members and visitors to Patagonia.

Academic Goals

Science and Environmental Education

- Identify native plants of the bioregion.
- Analyze results of a community survey.
- Classify habitat types.
- Measure and design garden sites.
- Analyze physical characteristics of soil.
- Evaluate sites for ideal physical characteristics.
- Compare healthy vs. unhealthy environments.
- Explain habitat and how it benefits wildlife.
- Describe plant communities.
- Design native plant environments.
- Describe anatomy of flower.
- Use a plant key.
- Define pollination and identify pollinators.
- Demonstrate use of lab equipment.
- Define quality of life for all living creatures.
- Compare historic vs. current attitudes towards environment.
- Discuss aesthetic appreciation and expression of natural habitats.
- Identify factors for health for all organisms.
- Discuss problems involving destruction of natural environments.

Social Studies

- Demonstrate responsible action with town government.
- Discuss, design, and model a town council meeting.
- Understand local political decision-making process.
- Develop public speaking skills.
- Develop presentation skills.
- Obtain grant funds from community groups.

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Service Goals

Participants

- Coordinate and collaborate with school and community members.
- Use academic and cognitive skills in real life situations.
- Share ideas to identify community needs.
- Debate community needs effectively.
- Design and conduct a community survey.
- Identify professionals in the community related to project.
- Establish stewardship of the community environment.
- Reflect on learning in a community setting.
- Acquire self-esteem and personal responsibility.

Community

- Develop a positive relationship with students and the school.
- Share their knowledge by participating with students.
- Understand the importance of student contributions to community efforts.
- Understand the importance of learning social responsibility.
- Recognize the community as an extension of school and learning.

Curriculum Activities

Four native theme gardens were designed and developed in the town park as a restoration and enhancement project led by Patagonia Middle School seventh-graders and their science teacher. A time frame for completing the project was not established, allowing latitude for creativity in dealing with unanticipated situations and permitting the project to evolve along with the developing skills of our students. Seasonal restraints governed the pace at which lessons could be taught; the gardens were to be planted in the winter. The service unit was integrated with other curriculum activities taught over two school years as the group graduated from seventh- to eighth-graders.

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The following schedule highlights some of the lessons taught during the two-year unit. The schedule is in chronological order as the lessons occurred, whether they are "in" classroom assignments or "service" activity assignments. The differences are designated by a ‡ for *service activities*.

Goal

Students will become aware of what community and service learning is.

Activities

1. State ideas about community.
2. Debate the best definition of *community*.
3. Visualize ideas of a "perfect" community.
4. Draw a mural of an ideal community.
5. Survey other service learning projects.
6. Reflect on activities in their journals.

Goal

Students will become aware of community responsibility and activism.

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Activities

1. Discuss and define responsible activism.
2. Identify personal skills and talents.
3. Draw an exemplary community service volunteer.
4. Participate in a community-building activity.
5. Visualize becoming the ultimate activist.
6. Reflect on activities in journals.

Goal

Students will learn to identify community needs.

Activities

1. Discuss ways to contact the community.
2. Develop a survey.
3. Conduct the survey.
4. Analyze results and graph data.
5. Determine a community service learning project.
6. Evaluate the practical application of the project.

Goal

Students will learn about careers that relate to the project.

Activities

1. Acquire knowledge related to plant chemistry, medicinal uses, and project development.
2. Ask relevant questions of herbalist/gardener.
3. Identify ways to develop a business from the knowledge of gardening.
4. Attend a field trip to a healthy garden business.
5. Record observations of physical characteristics of the garden.
6. Collect samples and analyze soil samples. (Soil invertebrates activity can be found in *Audubon Adventures*, published by National Audubon Society, 950 Third Avenue, New York, NY 10022.)

7. Debate possible business opportunities in native wildflower gardening.
8. Visualize participating in a business opportunity.
9. Create a mural of a garden and business conducted by CSLP students.
10. Reflect on learning opportunities from community members and outside.

Goal

Students will learn the process of scientific investigation.

Activities

1. Record observations of park environment by drawing, photographing, writing.‡
2. Classify observations.
3. Compare physical characteristics of park to healthy garden.
4. Measure physical characteristics of park.
5. Collect samples of park environment.
6. Analyze soil samples.
7. Graph results of healthy vs. park environment.
8. Evaluate park site requirement for restoration.

Goal

Students will learn social responsibility. They will identify skills to make constructive changes in the community.

Activities

1. Develop speeches for a town council meeting.
2. Model a town council meeting and critique.
3. Present a speech to the mayor and town council at an evening meeting.‡
4. Reflect on the presentation in our journals.

Goal

Students will learn to acquire and apply ecological principles to interpret the natural world. They will identify the component parts of a native environment in Patagonia and how they interrelate.

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Activities

1. Explain biodiversity, community, population, adaptation, and change.
2. Define quality of life for all living creatures including humans.
3. Identify local natural resources.

Goal

Students will learn communication skills through the visual arts and language arts.

Activities

1. Design a logo.
2. Develop a motto.
3. Write letters to obtain xeriscape gardening resources. (Resources provided by Xeriscape-Salt River project, Department of Water Resources, Phoenix; Arizona Game and Fish Department; Sawara-Southern Arizona Water Resources Association, Tucson; and USDA Soil Conservation Service, Tucson.)
4. Write a grant application to Patagonia Community Association.
5. Write a press release.

Goal

Students will learn to acquire and apply knowledge of botany as a way to interpret the natural world. They will be able to define the growing cycle in plants.

Activities

1. Identify parts of a seed.
2. Examine a sprouting seed over time.
3. Compare different types of seeds.
4. Illustrate results of sprouted seeds.
5. Observe different stages of the life cycle in wildflowers on campus.
6. Illustrate stages of germination and growth.
7. Collect samples of flowers.

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8. Examine reproductive parts of flowers in different stages of growth.
9. Build a model of wildflowers in stages of life.
10. Critique models for accuracy.

Goal

Students will learn communication skills through developing a graphic and making a presentation.

Activities

1. Redesign a logo.
2. Illustrate posters.
3. Discuss importance of presenting what we really want to say.
4. Write the speech.
5. Develop an activity for the presentation.
6. Choose a part of the speech.
7. Model a presentation for practice.
8. Critique model.
9. Conduct the presentation.
10. Reflect on presentation.

Goal

Students will learn to acquire and apply knowledge of botany as a way to interpret the natural world.

Activities

1. Identify reproductive parts of a flower.
2. Collect, observe, and illustrate pollen samples.
3. Speculate how pollen travels to the ovary.
4. Observe pollen traveling to plants around campus.
5. Observe and record the types of animals visiting flowers on campus.
6. Speculate how night blooming flowers become pollinated.
7. Identify insect anatomy.
8. Construct a model of a flower species.

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9. Construct an insect adapted to pollinate one species model.

Goal

Students will learn that cognitive skills apply to real life situations.

Activities

1. Select skills, talents, and tools needed to construct garden plots.‡
2. Estimate soil materials for each plot.
3. Purchase materials in town.
4. Construct four garden plots in the town park.
5. Evaluate garden plots.
6. Reflect on day's activities.

Evaluation Strategies

Some of the questions I hoped to answer throughout the unit were:

- Would our students learn to value community service as a way to acquire knowledge and to improve decision-making skills?
- Would they make the connection between classroom science and social studies lessons and their application to real-life situations?
- Would students begin to demonstrate higher cognitive skills as the project progressed?
- Would the students develop pride in their community and recognize the funds of knowledge existing among community members?
- Would the community at large recognize that students learning outside of the classroom can be beneficial to their education?

In order to answer some of these questions, I used several strategies: teacher observation, reflection exercises, self-evaluations, journal writing, multiple-choice tests, and pop quizzes.

Since the concept of community service learning was a new approach for students at Patagonia Middle School, I wanted to create a climate of trust among myself and the students. *Self-evaluations and reflection exercises* were therefore developed as

a way to let students voice their opinions and feelings about their experiences in outdoor learning activities and learning in the classroom without fear of being graded down. It allowed me an opportunity to gauge their commitment to the project and to become aware of any conflicts that might occur during cooperative learning experiences.

Observations were recorded based on the students' level of performance in cooperative groups, individual participation, leadership skills, and ability to follow instructions. I used a plus (+) system in the grade book and assigned point values depending on the degree of complexity of the task and the degree of temptation to be off task. This approach was useful during outdoor activities in which students worked in cooperative groups. Students were too busy to notice they were being evaluated. I always kept in mind that the interactions among middle school aged students have the potential to show only part of the nature of an individual student.

To get a better sense of the student as an independent thinker, I reviewed student journal writing activities as a way to assess students' understanding and whether they valued the project. *Journal writing* gave students an opportunity to be more focused on individual activities through the project. The journals were kept in a portfolio (folder) along with the students' reflection exercises and all other work. I reviewed them and made written comments to the students on a special comments and questions sheet they kept in their folders. I felt the journals

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helped the students stay organized and aided me in making assessments of the students. I could communicate with the students in writing regarding their progress instead of merely assigning a grade.

Multiple-choice questions and pop quizzes were used as a way to make a quick check of understanding concepts.

Reflections on the Project

Looking back on the project, I learned a great deal about facilitating a community service learning project. Many factors helped to strengthen the project. Parents and other members of the community were very willing to help with volunteer time, materials, and the funds of knowledge that were presented to the students. My supervisor, Mr. Adams, allowed the project group to walk to town for our field activities. The mayor, Shirley Treat, and her town council, approved the project.

Because Patagonia Middle School had a seventh-grade student body of about 40 students, I felt privileged to have known each of them very well and proud to have been their teacher. The potential for learning outside the classroom without the usual distractions and temptations of city life was high. The town park, where our service was performed, was a 10-minute walk from our classroom. The uncomplicated nature of the rural setting and the fact that we didn't need bus transportation eased logistical matters. More than that, however, the students met and went beyond the expectations I had set for the community service learning project. I am convinced the project was valued by most students. During the summer after the second year, students wanted to know if they could be involved with their gardens even though they would be in high school the coming school year.

Keeping the project open-ended allowed for creative thinking to deal with unanticipated problems. For example, just as the students were to begin developing their garden plots, the project was delayed by the town council. Heavy equipment use in the park to renovate the sidewalks and parking areas essentially closed the park for many months. This setback, along with being denied grant money for the project, was how we ended the first year.

Interestingly, the following school year, a district effort to consolidate schools added 10 students from the nearby communities of Elgin and Sonoita to the original CSLP group. We began the second project year infused with new visions and friends to work with to complete the project.

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One of the weaknesses of the project was not finding enough time in my day to record some of the best learning moments. On occasion, some lessons simply happened as a result of problem solving skills used by the students. These spontaneous lessons provided me with a way to assess their academic and cognitive skills in real-life situations. Another weakness was not having the foresight to have my students practice garden plot development and use of garden tools on a "testing ground" on campus.

Some suggestions I would make for any community service learning project would be to find at least one more adult—whether another teacher or a community member—to work with the primary teacher throughout the entire project. I would also recommend keeping up with press releases to inform the community of the project progress. Also, keep up with the letters home to inform parents *each time* their children will be out of the classroom. On an ongoing basis, take the time to reflect on the project yourself. Write down your thoughts in your own journal.

If you have a wish list, get an inexpensive camera—perhaps one that takes instant pictures—for use by students to record activities.

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Kids' Guide to Hunger

Site: Tucson, Arizona

Contact: Sherralyn A. Bludau, Mansfeld Middle School, 1300 East Sixth Street, Tucson, AZ 85719; 520/617-6120.

Community Profile

Tucson

Tucson Unified School District (TUSD), the second largest school district in Arizona, is located in a community known as "The Old Pueblo," Tucson. This city, rich in Mexican, Native American, and European heritage, is nestled between four mountain ranges, approximately 68 miles from the international border with Mexico.

TUSD has developed, in cooperation with business, the industrial sector, and post-secondary institutions, a Partners-In-Education Program entitled, "The Fourth R: All Children Will Graduate Prepared for the World of Work." A "Fourth R" goal is to prepare all TUSD students for responsible and participatory citizenship. Service learning fulfills that goal by offering students the opportunity to recognize the relevance of what they learn by applying their knowledge to real-life experiences. TUSD's Community Partnership Department assists and supports teacher-directed community service and service learning programs.

Unit Background

A team of four teachers from TUSD—Sherralyn Bludau of Mansfeld Middle School, Ron Brown of Doolen Middle School, Joyce Dillon of Wakefield Middle School, and Joy Goodsell of Townsend Middle School—and administrator V. Carole Smith from Carson Middle School created The Kids' Guide to Hunger unit to deal with world hunger.

Mansfeld Middle School is a desegregated inner-city school located next to the University of Arizona campus. The newly renovated school added the sixth grade to its previous seventh/eighth-grade population during the 1995-96 school year. The school is organized into six academic teams, two per grade level. A seventh-grade team made up of six teachers (language arts, math, science, social studies, physical education, and career technology) chose to adapt the model unit, The Kids' Guide to Hunger, to reflect an integrated thematic instruction unit for *all* content areas represented on the team. One hundred thirty

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students were involved directly with the unit of study. However, the entire faculty, staff, and student body participated in some components of the studies and services.

Unit Topic

The topic of world hunger was chosen for several reasons:

1. To address the life science curriculum, which was the focus of the 1993 institute at which the unit was developed.

2. To provide flexibility because each teacher on the team represented a separate school site with a different curriculum implementation format.

3. To deal with a local issue—each teacher's school site held a high percentage of students on the reduced lunch program.

The Kids' Guide to Hunger integrates science, social studies, and service learning. Below is an example of how the unit links the science and social studies curriculum with service to create a cohesive study.

Science	**Social Studies**	**Service**
Food from plants	World food map	Gardens
Photosynthesis	Staple food of world	Wormposting
Food factories	Where are the hungry?	Soup kitchen
Microbiology lab	Balance food and population	Food drive

TUSD's curriculum in each content area has been written to reflect Arizona's state curricular standards. The writers of Kids' Guide to Hunger used the district's curriculum outcomes to develop the unit. For example, a district outcome in social studies is that all students will know the six geographic regions. A Kids' Guide to Hunger objective in the first lesson is, "Identify, chart, analyze, and discuss food sources in the six geographic regions." The Mansfeld team of teachers in the content areas other than science and social studies also related the unit's objectives to the district's outcomes. For example, the language arts teacher developed journaling and communication skills needed for interviews and phone calls. Math used the world food information to establish percentage charts on food sources as well as staple foods of the world.

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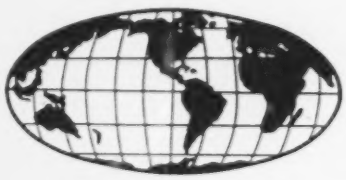
Academic Goals

Science

- Explain that all food comes directly or indirectly from plants.
- Formulate a definition for the process of photosynthesis.
- Describe the structures that make up the external features of a leaf.
- Demonstrate how to make a wet-mount slide of a leaf.
- Describe the structure and function of the cells that make up the internal structure of a leaf.
- Identify scientific technology used to increase food production (green revolution).
- Demonstrate the ability to grow plants that are nutritionally sound.
- Describe characteristics of water that make it essential to all living things.

Social Studies



- Identify, chart, analyze, and discuss food sources in the six geographic regions.
- Demonstrate the contributions of early Native American cultures and their food.
- Identify where hungry people live in the world.
- Discuss the relationship between food and population growth.
- Examine methods used to limit population growth.
- Identify the world's water systems.
- Describe issues and problems related to water usage.

Service Goals

- Set up a garden—container/school site.
- Establish worm bins for composting school trash.
- Create a video illustrating the value of the Community Food Bank.
- Pack lunches for an organization.

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▼ Organize a canned food drive.

Curriculum Activities

The Kids' Guide to Hunger includes three major lessons. The time needed for implementation of the unit is flexible (two weeks, nine weeks, or an entire year). To begin the topic of food and hunger, the students filled in KWL charts (a chart noting students' prior **K**NOWLEDGE, **W**HAT they would like to learn, and what they **L**EARNED). Following the KWL feedback, the student attended a "Hunger Meal" at which 15 percent of the students received a full meal of hamburgers, french fries, and chocolate milk; 25 percent of the students received a tortilla, refried beans, and water; and 60 percent received rice and water. Needless to say, when the food was served, quite a murmur of disapproval was hear. One student said, "All I have is rice. I want to move over there where they have better food." A teacher replied, "Do you think there are people in this world that feel the same about moving to another country—maybe like the United States?"

The students then wrote reflections on the meal. It was interesting to note that the students with rice wrote using stronger strokes in the formation of their letters and with many exclamation marks. Some even had holes in their paper. The meal brought the inequality of food supplies forcefully to the students. The meal also created an awareness of the difficulty in tackling such a mammoth problem—how to solve the world's food problem? The students concluded they needed to work in their own local community to solve the hunger problem.

Three substantive lessons followed this introduction.

Lesson One: Sources of Food

Goals

1. Explain how all food comes directly or indirectly from plants.

2. Describe the process of photosynthesis.

3. Chart, analyze, and discuss food sources in six geographic regions.

4. Demonstrate an understanding of early Native American cultures and foods.

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Activities

1. The Search for Starch. Learn that the ability of plants to make starch is critical to all other living things.

2. Charting Main Foods of the World in the Six Geographic Regions. Identify main food sources in each of the six geographic regions.

3. Staple Foods. Research the root causes of hunger throughout the world.

4. Native Americans and Our Diet. Learn that Native Americans excelled in plant domestication and plant growing.

5. Amazing Maize. Investigate the origin and spread of corn.

Lesson Two: Leaves—Food Factories

Goals

1. Describe the structures that make up the external features of leaves.

2. Make a wet-mount slide of a leaf.

3. Describe the structure and function of cells that make up the internal structure of a leaf.

4. Describe the effects of air pollution on plants.

5. Discuss the relationship between food and population growth.

Activities

1. A Good Look at Leaves. Examine the external characteristics of leaves and then make a wet-mount slide of the leaf to examine stomata and cells.

2. Wet-Mount Slides. Examine a thin cross-section of a leaf to identify different types and functions of leaf cells.

3. Air Pollution and Plant Life. Research and report the causes and effects of air pollution.

4. The Problem of the Commons. Examine the concept of carrying capacity and the relationship between resources and population.

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5. Modeling Population Growth: Effects on Biodiversity. Display and interpret statistical data about poplation growth and trends in global resource consumption.

Lesson Three: Water—The Indispensable Chemical

Goals

1. Identify conditions that allow for the formation of water on earth.

2. Describe different ways that water is used to meet human needs.

3. Understand process for making water usable.

4. Discuss and debate water usage questions.

Activities

1. Transpiration: A Demonstration. Observe plant transpiration as a source of water.

2. Diffusion through a Membrane. Perform experiments that demonstrate the process of water diffusion.

3. Water in My Life. Record ways and amounts of water used in a 24-hour period.

4. Making Water Usable. Examine process for cleaning or purifying water for human consumption.

5. Who is Responsible for Preserving Anyville's Water Supply? Role play various opinions regarding the regulation of underground water resources.

Service Activities

A successful service project that grew into a curriculum project through the interest of the students was the canned food drive. The school had never donated more than 100 cans of food during recent previous food drives. The students decided hunger education for all Mansfeld students was necessary for the success of the drive. They presented a hunger course of study for the school population. The study ranged from economics (including cost of living versus minimum wage math lessons) to population facts. All numbers used in the economic lessons were authentic for the Tucson community. A group of students produced a sensitive video of the Food Plus program to inform and motivate the viewers. Mansfeld Middle School collected over 1000 cans of food.

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The students decided just giving cans of food was not the answer to the local hunger problem, but only a temporary solution. They wanted to teach people to grow some of their food and specifically food indigenous to the Tucson desert land. In order to enrich the desert soil, the students established a worm bin. They used Mansfeld trash to feed the worms. The worms gave back a very rich fertilizer. This fertilizer the students used to enrich the soil in their container gardens.

Evaluation Strategies

The most effective means of evaluation was journaling. At the beginning of the Kids' Guide to Hunger unit, students wrote in general terms with no specific illustrations to back up their statements. As the unit developed, so did the animation and specificity in their writing. They expressed surprise at outcomes, interspersed with comments and questions for further analysis. The completed KWL charts (L-What I have **L**earned) also reflected new understandings and further questions.

The unit's success was demonstrated by the students' reluctance to have the school year end.

Reflections on the Project

The Mansfeld team used the Kids' Guide to Hunger as a semester unit. The major obstacle we had in adapting the model unit was time. Scheduling speakers, field trips, and special

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events was difficult with six teachers, 130 students, parents, and event coordinators. A solution to one of our field trip problems was the mini-field trip concept. A limited number of students would sign up for a field trip after school and/or on weekends. The trip would be repeated for several small groups. Students were required to attend at least one trip. This was a success because the smaller number of students made it more conducive for effective interaction with speakers and experts.

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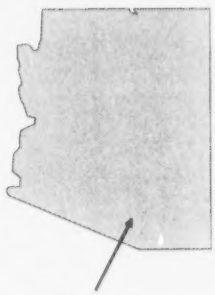
Los Lobos

Site: Tucson, Arizona

Contact: Kathy Trautner (Gridley Middle School) and Jenna Marvin (Secrist Middle School), Tucson Unified School District, 1010 East 10th Street, Tucson, AZ 85719; 520/733-8420 (Secrist); 520/733-8620 (Gridley).

Community Profile



Tucson is located in the Sonora Desert of the Southwest. It lies approximately 110 kilometers (68 miles) north of the Mexico border. Metropolitan Tucson, the second largest city in Arizona, hosts a population of 666,880. Since Arizona was a part of Spain and Mexico until 1853, a strong Mexican and Spanish heritage lingers, giving us the nickname "Old Pueblo." Some of the Old Pueblo's industries are military, University of Arizona, tourism, and high-tech businesses.

Arizona is unique in that 45 percent of its land area is owned by the federal government; this federal land includes 20 Indian reservations. Wide open spaces and a wealth of mineral deposits brought many people to Arizona to seek their fortunes in ranching and prospecting. Since its statehood in 1912, Arizona has continued to be viewed as a part of the "Wild West," and many Americans migrate to Arizona to take advantage of its mild climate and independent spirit. All this helps to create an atmosphere of not wanting the government to impose upon one's independence: in this case, the reintroduction of the Mexican gray wolf.

The Mexican gray wolf habitat is traditionally located above 4,500 feet. Tucson, located at 2,500 feet, is in a valley that is surrounded by the Catalina, Santa Rita, Tucson, and Rincon mountains. These mountains, as well as many others in Arizona, have made sky islands of coniferous trees, sufficient water, and a cooler climate above the Sonora Desert. This climate is conducive to an ecosystem that would include the Mexican gray wolf.

Unit Background

This unit was developed to complement the Arizona-Sonora Desert Museum's science unit on the Mexican gray wolf (Lobo). This accompanying unit has been designed to be used with the science unit or independently.

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The two schools where this unit was implemented are located on the east side of Tucson. The population is middle class and predominantly Anglo. These schools are located in a suburban rather than an inner-city area. The students have desert areas readily available, including the Saguaro National Park.

Unit Topic

To integrate Arizona history, science, and language arts with current issues, the topic of the reintroduction of the Mexican gray wolf was chosen. We felt this was a good topic because it engages the students' interests in the environment, animals, and the present and future use of undeveloped land in and around Tucson. Issues included were the attacks and challenges to the Endangered Species Act, the Mexican gray wolf's being the most endangered species in the world, and the issues surrounding anti-development versus pro-growth arguments in Tucson.

Specific topics covered from the various disciplines included the following:

Social Studies
Image of wolf through history
Arizona geography
Public opinion—past and present
Endangered Species Act
Arizona government

Science
Classifying
Habitat and niche
Food chains
Wolf societies
Comparative anatomy
Animal tracks
Urban expansion

Language Arts
Newspaper writing
Debate
Stereotypes through literature
Myths and legends—reading and writing
Letter writing
Creative writing
Habitat research
Novel study (see suggested readings)
Journaling

The community issue or problem addressed was reintroduction of the Mexican gray wolf to the Southwest.

Academic Goals

Science

Demonstrate knowledge of the following science topics:

- Anatomy and physiology as it relates to the wolf.

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- Comparative anatomy of wolves, humans, and other animals.
- Classification of the wolf.
- Food chain as it pertains to wolves, humans, and wildlife.
- Social structures, range, territory, communication, and breeding within a wolf pack that creates a wolf society.
- The effect of urban expansion on wildlife and humans.
- Adaptation as a tool necessary for survival.

Social Studies

Demonstrate knowledge of the following social studies topics:

- Arizona history as it relates to the Mexican gray wolf, ranching, and land use.
- Arizona geography in relation to past and future habitats for the Mexican gray wolf.
- Understanding of Arizona civics and citizenship.

Language Arts

Demonstrate knowledge of the following language arts topics.

- Separation of fact from fiction in literature.
- Reading comprehension, analysis, and creative writing of stories with wolves as characters.
- Myths and legends as they pertain to wolves and their interactions with humans.
- Persuasive letter writing, expressing opinions about reintegration of the wolf.
- Debating possible solutions for humans and wolves to live in harmony.

Service Learning Goals

Participants

- Incorporate classroom learning to educate the public on issues surrounding the reintroduction of the Mexican gray wolf.
- Conserve resources as a means of saving the Mexican gray wolf habitat.

- Develop a greater sense of citizenship by understanding their place in the community.
- See the connection between the classroom and the real world through service learning.
- Become active in state and federal government policy making.
- Engage in the reflection process throughout the unit.

Community

- Become informed on the issues of reintroduction of the Mexican gray wolf.
- Provide a forum for students to demonstrate their social responsibilities.
- Benefit in that students became role models for habitat preservation through conservation.
- Provide a means for intergenerational sharing of experiences, knowledge, and culture.

Curriculum Activities

This unit was designed to last for one nine-week quarter. Some of the service activities lasted throughout the school year and, in one case, went into the next school year.

Lesson One

Goals

1. Show how first impressions affect opinions.

2. Classify wolves and make comparisons between the domestic dog and the wolf.

Activities

1. Rank photos of animals from favorite to least favorite, telling why one is their favorite. Next, write an obituary about the least favorite animal. (This lesson is adapted from "First Impressions" lesson from *Project Wild Activity Guide*. See **Support Readings** for further information.)

2. Create "wolf booklets" in which students keep their writings, newspaper clippings, etc. As an introduction, students either draw a picture or write a description of "their" wolf. This will be used as a pre-evaluation device to be compared with

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their final picture at the end of the unit. Discuss where they learned their images of the wolf.

3. Classify wolves into their class, order, family, genus, species, and subspecies, making distinctions between vertebrates and invertebrates. Compare the domestic dog to wolves and discuss whether wolves make good pets. (This lesson is taken from the wolf curriculum from the Arizona-Sonora Desert Museum. See **Support Readings** for more information.)

Lesson Two

Goals

1. Identify how point of view affects a story in literature.

2. Identify sources of the wolf image.

3. Identify physical characteristics of the wolf and the different social structures of a wolf pack.

Activities

1. Write detailed paragraphs describing what they would see if they were a snake entering the classroom. Next write another paragraph describing the same situation, but this time as a puppy. Share responses and discuss literature and its relation to point of view. List favorite childhood stories involving animals and whose point of view each is written from. (Note: The teacher should make sure stories with wolves as characters are listed.) Finally, focus on the stories with wolves as characters and discuss how point of view affects the wolf image. Novel study may also be introduced at this time.

2. View a video showing the history of the wolf (*Wolf: The Reluctant Villain* is recommended), list events pertaining to the history of the wolf, and create timelines for inclusion in wolf booklets.

3. View a slide program provided by the Arizona-Sonora Desert Museum that gives an introduction to the Mexican gray wolf. Discuss the social structure, range, territory, and communications of the wolf pack. Examine drawings of wolf facial expressions and tail postures, identifying the social hierarchy of wolves in the pack based upon these drawings. As homework, make comparisons with their own or a friend's pet dog. (This lesson is taken from the wolf curriculum from the Arizona-Sonora Desert Museum. See **Support Readings** for more information.)

Lesson Three

Goals

1. Identify biases toward wolves in literature and show how childhood images of wolves in books carry through to adulthood.

2. Explain the reasons for the conflict between the wolves and the ranching industry in the Southwest.

3. Identify the different ways in which animals walk.

Activities

1. Read *Lon Po Po*, the Chinese version of "Little Red Riding Hood" and respond to the story in journal entries.

2. Read a chapter from the Arizona history book or see a video about ranching for background information. Take the part of a rancher or child of a rancher and write a diary entry about the activities on the ranch and how ranchers use the land, including the rancher's feelings about wolves. Read diary entries to the class and discuss land use, economy, cattle, sheep, grazing, clearing of trees, and livestock competing for food and space with deer, javelina, and other wolf prey. Discuss how these activities created conflict between the rancher and the wolf.

3. Learn the terms *unguligrade*, *plantigrade*, and *digitigrade*. Use food replicas obtained from the state Game and Fish Department to make stamps, placing the stamps randomly on 18" by 18" paper. Identify the prints by the type of walk. Compare pictures and facts about animals to identify which animal tracks are on the paper.

Lesson Four

Goals

1. Identify how biases toward wolves in literature affect adult conceptions of the wolf.

2. Identify other parties besides the rancher who wanted the wolf exterminated and their reasons.

3. Identify animals by their tracks through casting and molding.

Activities

1. Read "Little Red Riding Hood," "The Three Little Pigs," and "Peter and the Wolf" and discuss how the wolves are portrayed in these stories and whether the wolves appear realistic or fictional. Choose one of the stories and rewrite it from the wolf's point of view.

2. Brainstorm a list of people who may have wanted the wolf exterminated; beside each one, list their reasons.

3. Read the hunters newsletter on pages 68 and 69 in *The Wolf in the Southwest* (see **Support Readings**). Generate questions as to how this newsletter was used to eradicate the wolf.

4. Again, use the foot replicas to make casts and molds of the feet. Outdoors, find some animal tracks and make casts of them.

Lesson Five

Goals

1. Identify similarities and differences between wolf myths from around the world.

2. Explain how historical southwestern legends helped continue the bad wolf image into the 1970s.

3. Identify the various aspects of a wolf's anatomy and physiology.

Activities

1. Read the story, "The Mask of the Wolf," and write journal entries about how this story shows examples of the Nuu-chah-nulth culture. Read two more myths about wolves from around the world and create a chart comparing the three myths. Create a wolf myth that involves interaction with a Native American tribe from your area. (The story "The Mask of the Wolf" can be found in *The Wonder of Wolves*.)

2. Read legends in Chapter 4 of *The Wolf in the Southwest*. Discuss how the elusive wolves Old One Toe, Las Margaritas, and the Last Lobo in Texas added to the legends that were brought over from Europe and helped kill off the remaining Mexican wolves in the Southwest.

3. Using transparencies, examine the wolf's body, its organs, muscles, and skeleton. Sketch and label the parts of the body.

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Experience how wolves rely on their sense of smell by using film canisters and cotton balls containing different scents. Compare the wolf's body to other animals using skulls, pelts, and pictures. (A "bone box" may be obtained from your local Fish and Game Department.) Explore the items in the bone box and make conclusions about the animals. Make a chart of the size of the eye orbit, length of the nose, and the sharpness of the teeth of each of the animals in the bone box.

Lesson Six

Goals

1. Incorporate facts about wolves into writing activities.

2. After studying geographical maps of Arizona, determine suitable sites for possible reintroduction of the Mexican gray wolf.

3. Discuss habitat and niche as it pertains to the Mexican gray wolf.

Activities

1. Use facts learned in all of the lessons to create an illustrated booklet or poem about wolves.

2. Become geographers for the Arizona Game and Fish Department to make recommendations for possible reintroduction sites for the Mexican gray wolf. Look at maps of the past range of the Mexican gray wolf and compare to present maps of Arizona that include elevation, populations, public lands, precipitation, water availability, and availability of resources needed by the wolf to survive. In groups, select the best places for possible reintroduction, present their three best recommendations, and defend their choices. Compare this to the places actually chosen by the U.S. Fish and Wildlife and Arizona Game and Fish. The Blue Range in eastern Arizona is their first choice. (Good maps may be found in the *Historical Atlas of Arizona*. See **Support Readings** for further information.)

3. Simulate wolves, food, water, and shelter to demonstrate the most essential things that animals need in order to survive. (This game—titled "Oh Deer!"—is taken from the *Project WILD Activity Guide*.)

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Lesson Seven

Goals

1. Identify different habitats for different wolves from around the world.

2. Explain what the Endangered Species Act is.

3. Identify the different aspects of a food chain.

Activities

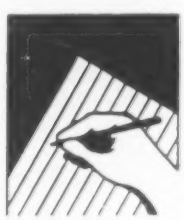
1. Use library resources to identify specific elements of a wolf habitat (e.g., Timber Wolf, the Red Wolf, the Arctic Wolf, and the Tasmanian Wolf). Draw a picture of a habitat for the particular wolf researched.

2. Read the appropriate sections of the Endangered Species Act and discuss how this relates to the Mexican gray wolf. Write a declaration of whether the Mexican gray wolf is an endangered species or not. Discuss the U.S. government's responsibility if the Mexican gray wolf is an endangered species. A copy of the Endangered Species Act may be obtained from the U.S. Fish and Wildlife Department.

3. Play the food chain game. Trace previous night's dinner through the food chain. (The food chain game is available from the Arizona-Sonora Desert Museum. "What's for Dinner" and another excellent food chain lesson—"What Did Your Lunch Cost Wildlife"—are available in the *Project Wild Activity Guide.*)

Lesson Eight

Goals



1. Evaluate the value of the Mexican gray wolf in the ecosystem of the Southwest.

2. Use proper letter-writing technique to try to influence governmental policy making.

3. Incorporate knowledge gained through research to build habitat replicas.

Activities

1. Make a T-chart listing the pros and cons of reintroduction of the wolf. Also, review the declarations of the wolf as an endangered species and discuss the future of the Mexican gray wolf.

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Write a few paragraphs in wolf booklets describing decision and reasons for it.

2. Write letters to local, state, and federal policymakers and to the president of the United States, giving opinions on the Endangered Species Act and the reintroduction of the Mexican gray wolf.

3. Build a diorama of a wolf habitat, including realistic vegetation and terrain, a den, and a cache.

Lesson Nine

Goals

1. Identify how animals adapt and why certain animals have special features.

2. Describe the procedures of a public meeting in Arizona government.

3. Explore the consequences of urban expansion in relation to wildlife.

Activities

1. Read "Why a Possum Has a Naked Tail" and discuss how the possum's ability to play dead is a special adaptation. List other animals with special features and discuss these adaptive traits. Play "20 Questions" about animals with special adaptive features.

2. Conduct a simulation of the Arizona Game and Fish Commission in its decision on reintroduction of the Mexican gray wolf or the state legislature passing a bill for or against the reintroduction of the Mexican gray wolf.

3. Participate in a demonstration of urban expansion and habitat loss. (Possible activities—all from Project Wild—include "Too Close for Comfort," in which students learn the positive and negative consequences of crowding and how to help reduce negative consequences of crowding for wildlife; "Cabin Conflict," a role playing situation in which cabin owners and the wildlife agency have a courtroom battle debating private ownership of land that is needed for other uses, such as wildlife habitats; and "Planning for People and Wildlife," which involves students in planning a community that is suitable for both humans and wildlife.)

Lesson Ten

Goals

1. Identify environmental conditions to which an urban animal must adapt and create a perfectly adapted mythological urban animal.

2. Synthesize knowledge learned about wolves by creating games for others to use.

3. Use knowledge learned about adaptation to complete activities.

Activities

1. Brainstorm a list of environmental conditions that affect urban animals. After discussing this list, work in small groups to create an urban animal that is perfectly adapted to living under the city conditions listed. (These mythological animals turn out especially interesting if students are supplied with materials such as empty toilet paper tubes, pipe cleaners, popsicle sticks, paper, tissue, etc.) Create a myth as to how the urban animal came to be.

2. Create games to teach the user something about wolves. (This game was used as a service activity to teach younger students about wolves.)

3. Play game that teaches the importance of adaptation. (Three possibilities are available from Project Wild: "The Thicket Game" demonstrates the importance of camouflage; "Seeing is Believing or The Eyes Have It!" has students use kaleidoscopes, binoculars, telescopes, and fish-eye mirrors to demonstrate different adaptations in vision; "Polar Bears in Phoenix?" demonstrates the problems animals face when removed from their natural habitats.)

Lesson Eleven

Goals

1. Objectively discuss the conflict between ranchers and wolves and create possible solutions to the problem.

2. Evaluate what was learned by comparing before and after beliefs and knowledge.

3. Identify a problem involving wildlife on school grounds and suggest a solution.

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Activities

1. Read a story in which a rancher has found one of his sheep eaten by a wolf (told from both the rancher's and wolf's perspective) and write journal reflections on the story. In small groups, brainstorm possible solutions that would allow the wolves to live in a safe habitat and the ranchers to not fear the wolf. Create a "billboard" poster advertising the group's solution and then present it to the rest of the class. (Story and reflection questions available through SSEC.)

2. Draw or write a new description of the wolf image. Compare the new picture with the one made at the beginning of the unit. Are there any changes? Did anything remain the same? What may have changed the pictures and why? should the Mexican gray wolf be reintroduced? What can students do to further educate the citizenry about their views?

3. Synthesize all the knowledge gained throughout this unit by thinking of some ways in which students could improve some area of the school grounds for local wildlife. Decide upon the best action and implement the plan.

Support Readings

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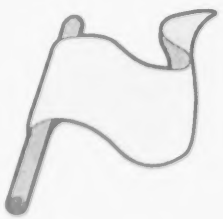
Service Activities

Two types of service activities were conducted. The first was educating the public about the Mexican gray wolf. The second concerned saving the local wildlife habitat. Many of the activities were student-generated and thus had greater student buy-in.

Educating the Public

- Create a wolf timeline with pictures and stories to be displayed along a long hallway or perimeter of a room. Invite the public to come and see it, or display it at a mall, rest home, etc.
- Make wolf games teaching the players about wolf characteristics, habitat, history, or reintroduction issues.
- Conduct a public opinion survey about the reintroduction of the Mexican gray wolf. Send results with letters to public officials such as the Arizona Game and Fish Commission and local, state, and federal decision makers.
- Take student-rewritten fairy tales, bind them into a book, and donate to local school and public libraries.
- Make silk screen flags that promote protection of the desert, wildlife habitats, and endangered species (including the wolf), and then distribute to elementary schools.
- Raise money to bring Mission: Wolf to town to have educational programs at schools and public libraries to inform the public about wolves. The money also provided sponsorship of a wolf for one year.



Saving Local Wildlife Habitat

- Planting low water use plants in pots painted by students and then distributing them to local retirement homes.
- Plant native trees at school.
- Recycle paper, aluminum, and styrofoam at school to reduce landfill space.
- Start an energy patrol on campus to reduce need for fossil fuels.

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- Reuse six pack rings to create a volleyball net. The net will be donated to a community pool for the summer.

Evaluation Strategies

The evaluation of "Los Lobos" was ongoing. Because we are at two different schools with different teachers, the unit was not taught exactly the same. These variations actually enriched the unit as we passed suggestions on to each other while we were teaching it.

In addition to the teacher evaluation, the student input was very valuable. We monitored the success and needed changes through journal writing, class discussions, wolf booklets, tests, and measuring student enthusiasm. As a summative evaluation, we asked the students what they would recommend for next year's classes that will also be studying the wolf.

Reflections on the Project

At Gridley, Los Lobos was an excellent tool to help our teaching team become more integrated. Integrating is not an easy job, so the teachers on my team welcomed the curriculum with open arms. The unit was taught the third quarter of the school year, but the students had heard about the unit since the beginning of the school year. Needless to say, the students were extremely excited to finally get to start the project. One would think that a seventh-grader would get bored with wolves after nine weeks of study, but these students were actually disappointed at the conclusion of the unit. Their enthusiasm was extremely high throughout the unit. Many students printed pages and pages of information about wolves that they found at home on the Internet. Library books poured into the classrooms—ones that students checked out on their own and wanted to share. Many students even sponsored their own wolf from Mission: Wolf. Students were very eager to help in any way they could. This in turn sparked an enthusiasm to provide a better habitat for local wildlife, which caused them to create many service projects in and around the school.

This project was also a wonderful learning experience for me. I learned the great value of integrating curriculum, the importance of student-generated activities, and the joys of making wonderful friends along the way. Others also saw the greatness of this project, because the first two years that this unit was taught, grants totaling $1,000 were given to my team to help support the needs of the students during Los Lobos.—Kathy Trautner (Gridley Middle School)

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At Secrist, integrating service into the curriculum has been a rewarding challenge. I found my students were a great resource with creative ideas and an abundance of enthusiasm and heart to give. Whenever there was an obstacle I could not see around, the students showed me how to jump over it.

At first I struggled to find service activities that could be done with my students. Our school is located on the far east side of Tucson, away from any businesses or organizations that could utilize us. The closest park is over two miles away. The road in front of our school is a major route to the interstate, so walking to any open space brings up huge safety problems. For the entire year our school of 560 is allowed four bus trips. In other words, transportation is a major problem. So, I put the challenge to the students and we came up with activities we could do right on our own campus.

Allowing the students to generate their own service projects, as well as pick from and change some of my ideas, created a lot more student buy-in and pride. Each of my five classes did a different project; however, each class chose theirs democratically. I did get involved by pointing out where there could be problems, as did other students, to help with the success of the projects. Some projects were more successful than others, but we all had fun and the students learned a lot about science, social studies, and service through the Mexican gray wolf and the desert.

The seventh-grade teachers at my school also learned something: we can do powerful, meaningful, and fulfilling work together by integrating. We did not have teams at my school until I approached the teachers at the school and asked them if they would support what I was doing in social studies. I was overwhelmed by the response I received. In fact, the physical education teacher organized her curriculum to complement what we were doing in social studies and science. The greatest validation from the teachers came when four of the teachers approached me about starting a team for the next year since this unit had worked so well.

I would have to say the ultimate validation for doing this service learning unit came from the students. When I announced to the following year's classes that we were starting the wolf unit, there were cheers from the students. Word gets around when people are having fun.—Jenna Marvin (Secrist Middle School)

For both of us, whether it was writing letters, teaching a younger student, planting a tree, or sharing with an elderly person, students learned a lot about citizenship and their role in their community, which was our ultimate goal.

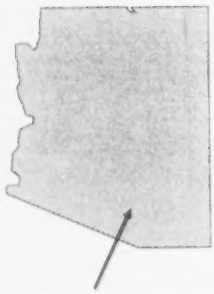
Salvien El Desierto

Site: Valencia Middle School, Tucson, Arizona

Contact: Kathleen Sexton, Valencia Middle School, 4400 West Irvington Road, Tucson, AZ 85746; 503/578-4670.

Community Profile

Valencia Middle School in Tucson, Arizona, is a close neighbor to the Arizona Sonoran Desert Museum. Our school community lives in the shadows of the Saguaro National Park (west), but students often take their immediate surroundings for granted.



Tucson Unified School District has an environmental campus that schools can visit, Camp Cooper. Students are introduced to desert ecology on scheduled visits. Valencia Middle School is unique in that it can offer its students that opportunity without leaving campus. Valencia's campus has small habitats and a wide variety of desert wildlife, thus affording students an educational, interdisciplinary, hands-on environmental learning lab.

Unit Background

The junior docent pilot program evolved from a unit on student involvement and responsibility for their environment. Through a thematic unit on desert ecology, students were to identify areas that could be improved or enhanced by student activism. The setting of Valencia Middle School in a Sonoran Desert environment allowed for many student-directed activities involving desert ecology. The Arizona Sonoran Desert Museum presented the opportunity for a partnership that would benefit both students and the community. The program is also run in conjunction with Tucson Unified School District's Fourth R program (getting children ready for the world of woRk).

Unit Topic

Students are aware of the dangers of losing tropical rain forest acreage to technology and industrial demands. The unit topic was selected to help them use that same concern to make people aware of the loss of Arizona's saguaros and desert habitats to development and urban sprawl. Researching the life cycle of the saguaro, students are keenly aware that if contractors

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and realtors keep removing and relocating saguaros, we may lose our "desert sentinels."

The community issue or problem addressed was the need to make the community aware of the very special and fragile nature of our unique desert environment, the possible endangerment of the saguaro, and the plight of the Mexican wolf.

Academic Goals

Science

Students will be able to demonstrate the following:

- Positive attitudes and excitement toward learning science and confidence in their ability to investigate the natural world and understand science concepts.
- A better understanding about the nature of science and technology.
- Ability to apply appropriate scientific knowledge to interpret the natural world.
- An understanding of the historical contributions in science and the context in which they were made.
- Integrated thinking skills through science experiences and effective application of these in personal decision-making.
- An understanding of the limits, possibilities, and interrelationships among science, technology, society, and the environment.
- Cognitive and manipulative skills through the use of interpretive materials and live animal handling.

General Learner Goals

Students will be able to demonstrate the following:

- Verbal and technological literacy relating to Sonoran Desert ecology.
- Increased skills in communicating with the public and in group interaction.
- Increased skills in cross-cultural communication and in creative problem-solving.
- Familiarity with past and present cultures of the Sonoran Desert region and how these groups have affected the environment.

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- Concern, sensitivity, and respect for others.
- Skills in creating personal, social, and political change.
- Increased capacity for enhancing self-esteem through the development of interests that promote emotional, intellectual, and physical well-being.
- Capacity to be self-directed learners.

Service Goals

Participants

- Instill a conservation ethic by getting students personally involved in the museum's mission, which will give them a vested interest in both the museum and the Sonoran Desert.
- Introduce young people to the variety of staff and positions in a museum setting so that they can develop broader career goals.
- Provide younger students with an opportunity to learn directly from museum staff about the geology, flora, and fauna of the Sonoran Desert region.
- Provide both students and teachers with interpretive techniques for stimulating an interest in the natural world.
- Encourage the integration of outdoor science study with all other aspects of school curriculum.

Community

- Develop a network of junior volunteers who can be effective educators among their peers, younger students, families, and neighborhoods.
- Encourage greater participation in museum programs by underrepresented ethnic groups.
- Create a continuing partnership with local schools that will provide teacher input for future program development.
- Maximize the museum's education effectiveness through an ongoing project that will eventually integrate aspects of both on-grounds and outreach programs.

Curriculum Activities

Salvien El Desierto is divided into six sections: unit introduction, desert soils, desert plants, desert animals, human impact

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on the desert, and service. The introduction and sections on desert soils, plants, animals, and human impact are explored through science, social studies, and—occasionally—language arts activities. Following is a sample of the unit activities.

Unit Introduction

Goals

1. Identify the conditions that create a community.

2. Identify living and nonliving parts of a community and apply the terms biotic and abiotic to them.

3. Identify the Sonoran Desert on a map.

4. Write poetry based upon their interpretation of a desert scene/experience.

Activities

1. Differences in Biomes. Examine major biomes in North America and compare and contrast the conditions that distinguish biomes from one another.

2. Examining the Living and Nonliving Parts of the Environment. Examine the components and relationships of a community and understand the conditions that affect the dynamics of the community.

3. Where Is the Sonoran Desert? Locate the Sonoran Desert on a map and identify the major geographic features of the desert.

4. A Crow Doesn't Need a Shadow. Visit the desert and write poems about experiences in the desert environment.

Desert Soils

Goals

1. Visualize how soil is formed from rocks and the importance of time in the process of soil formation.

2. Observe that soil is made up of many different things.

3. Investigate the unique properties of desert soil and compare desert soils to other forms of soils.

4. Investigate the relationship between human activity and the physical characteristics of the land inhabited by human beings.

Activities

1. Rock Grinding. "Make" three kinds of "sedimentary rocks" and physically wear them down into soil material.

2. Digging for Facts. Observe and measure the amount of rock particles, sand, silt, and clay in various samples of soil and see some other components of soil.

3. The Soil Connection. Become "soil surgeons" dissecting desert soil and sorting its components, and begin to discover its unique properties.

4. Mock Soil. Create soil that has many qualities of real desert soil.

5. Where in the World, What in the World, Why in the World. Examine relationships between geography and human activity and lifestyle.

Desert Plants

Goals

1. Understand the factors that affect seeds sprouting.

2. Observe the influence of temperature on seed germination.

3. Examine the characteristics of Sonoran Desert plants.

4. Examine how human beings have used desert plants to help meet human needs.

5. Compare and contrast the uses of the saguaro cactus by various people and cultures.

6. Examine the effects of human population movements on the growth and spread of the saguaro cactus.

7. Write an acrostic poem based on observations of a saguaro cactus "forest."

Activities

1. Yo Seeds, Wake Up. Experiment with several conditions to observe their effects on the germination of seeds.

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2. Temperature and Seed Germination. Experiment with temperature to observe the effects of temperature on seed germination.

3. Desert Plant Adaptations. Examine how desert plants adapt to the stresses of limited moisture and intense radiation from the sun.

4. Desert People and Desert Habitat. Examine why and how desert dwellers use desert plants for food, shelter, clothing, and other life needs.

5. Past and Present Uses of the Saguaro. Examine how the saguaro has been used by people and cultures for food, shelter, furniture, and trinkets.

6. The Effects of Human Population on the Saguaro. Examine the effects of human population in Tucson, Arizona, on the saguaro cactus and policies developed to try to preserve the saguaro.

7. Forest Explorations. Visit a saguaro cactus "forest" and write an acrostic poem from their observations.

Desert Animals

Goals

1. Identify components of habitat as food, water, shelter, and space for suitable arrangement.

2. Understand how animals adapt to desert conditions.

3. Examine the relationships between plants and animals in a desert environment.

4. Describe some causes for extinction of animal species.

5. Evaluate the value of the Mexican wolf to the ecosystem in the Southwestern United States.

6. Describe the Endangered Species Act and understand the act as it relates to the Mexican wolf.

7. Discuss the plight of the Mexican wolf from a variety of points of view.

Activities

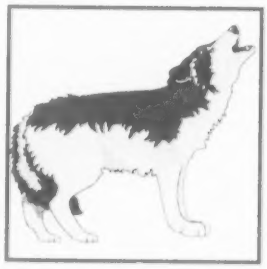
1. Habitat Rummy. Acquire a working understanding of the components of habitat.

2. Animal Adaptations. Examine how desert animals have developed ways to live in dry conditions by searching out, storing, and conserving water.

3. Plant and Animal Interrelationships. Investigate the fragile balance between plants and animals in the formation of a desert community.

4. Here Today, Gone Tomorrow. Become familiar with classification of animals, conduct research, and make a master list of threatened and endangered species locally and nationally.

5. Should the Wolf Be Returned to the Southwest, or Should It Remain Expelled? Identify and debate the pros and cons of returning the Mexican wolf to the American Southwest.



6. What Is the Endangered Species Act and What Does That Mean to the Mexican Wolf? Read the Endangered Species Act and relate the act to the past and current problems with the Mexican wolf in the Southwestern United States.

7. Is It a Win-Win or No-Win Situation? Analyze the Mexican wolf controversy and propose solutions to the problems by taking a variety of points of view on the issue.

Human Impact

Goals

1. Investigate the ways human beings have adapted to enable them to survive in the desert.

2. Determine if the presence of human beings has helped or hindered the delicate ecological balance of the desert.

3. Describe possible negative consequences to wildlife, people, and the environment from human-caused pollutants.

4. Identify ways people can behave in order to reduce negative consequences of crowding for wildlife.

5. Recommend actions to improve and/or maintain the quality of wildlife in the community.

6. Evaluate compatible and incompatible uses of an area by people and specified kinds of wildlife.

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Activities

1. Cultural Adaptations. Examine how human beings have learned to live with the problems of limited water and high temperatures of the desert.

2. Human Impact. Evaluate the impact of human beings on the fragile Sonoran Desert environment.

3. No Water off a Duck's Back. Conduct experiments relating to environmental pollution—particularly an ocean or river oil spill.

4. Too Close for Comfort. Experiment with physical distance and levels of comfort in humans and estimate appropriate distances between humans and wildlife under various conditions.

5. Keeping Score. Investigate neighborhoods for cause-and-effect relationships affecting wildlife and develop community scorecards in order to make recommendations of actions to improve the relationships.

6. Improving Wildlife Habitat in the Community. Design and accomplish a project to improve wildlife habitat in their community.

Following this thematic unit on desert ecology, students were selected for the junior docent program through an application and interview process. Those selected attended four substantive workshops at the museum. Topics covered in the workshops were:

1. Orientation and behind-the-scenes tour.

2. Introduction to desert ecology interpretations, Saguaro kit, mineral kits, and rock cycle board.

3. Arthropods and birds, arthropod architecture, bird kit.

4. Mammals and live animal handling procedures, skill kit, live arthropod handling and interpretation.

Between the workshops, docents came to the school to check on the progress and accuracy of student projects, which included developing naturalist kits.

Service Activities

Service activities provided by junior docents at the Arizona Sonoran Desert Museum include assisting in the preparation

and presentation of youth-oriented programs at the museum, most notably Earth Day. Students created posters and developed food web illustrations, slide shows, and demonstrations. They also coordinated Earth Day activities at Valencia Middle School and feeder elementary schools. During the summer, they filled interpretive and tour guide roles at the museum. In subsequent years, junior docents will aid in the training of more docents to help educate students and school staff about the desert environment. Additionally, the junior docents will be active participants in a desert ecology unit made available to fourth-graders. As part of their preparation, they will receive training and practical experience in public speaking (English, Spanish, and Sign Language), intergenerational communication, and acceptance and awareness of cultural diversity.

In addition to the junior docent activities, other service activities have been conducted or planned in conjunction with the desert ecology unit. Through the Tucson Clean and Beautiful program, the students adopted the desert area adjacent to the school grounds and were responsible for creating a healthy habitat for indigenous wildlife. By example, the students reduced litter accumulation. They also studied the saguaro stands near the road.

Through collaboration with native seed research and growing connections, three intergenerational gardens have been planned. The community will be invited to help plan, dig, and seed the gardens. One garden will be all native, a second will be amended soil and native seeds, and the third garden will be amended soil and hybrid seeds. A comparative study of water usage, productivity, germination rates, and taste will be conducted. Results and garden products will be made available to the community.

The students also will create compost to fertilize their gardens and produce instructional materials on the benefits of composting and how to do it.

Finally, a tortoise habitat will be constructed and maintained on campus. Students will be responsible for the planning and construction of the habitat and the care of the tortoises in residence. Students will also be involved in educating visitors to the campus about the fragile nature of the habitat. This project is being conducted in concert with Arizona Game and Fish Department through a Heritage Grant that project participants have applied for.

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Evaluation Strategies

Upon being selected for the pilot junior docent program, students were given an attitudinal survey, which assessed their feelings and concerns about societal and school subjects and issues. A survey will again be administered following the pilot program to measure any changes in student perspectives and opinions. Students are also required to keep learning logs during the pilot program. A community agency student assessment will be filled out by the coordinating teacher. This instrument measures attendance, attitude towards tasks, independent work skills, problem-solving strategies, interpersonal communication skills, and appearance. A similar assessment instrument will be given to the Arizona Sonoran Desert Museum coordinator to rate the students on the effectiveness of their work for the museum. A group meeting will be held to evaluate the system, program, training, development, and implementation of the program. Suggested criticisms and constructive comments will be assessed and changes made if agreed upon by all affected.

Reflections on the Project

All faculty members are involved with the program at different phases of development. Two hundred and forty students will benefit from the program, along with forty-two faculty members. The staff has given extra time and talent to lend the junior docents any expertise and help they can. It has been a very unifying experience for the faculty of a new school to rally around a project very important to our student population, Salvien El Desierto!

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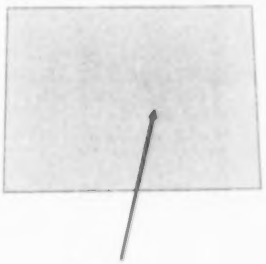
Sand Creek Park

Site: Aurora, Colorado

Contact: Julie Frese, North Middle School, 12095 Montview Boulevard, Aurora, CO 80202; 303/364-7411.

Community Profile

The population of north Aurora is primarily lower middle class. Many residents have lived their whole lives in the area, while another segment of the population is very transient. The school setting reflects this dichotomy, with a stable population base and a high transient rate as students move in and out of the school.


Aurora

The neighborhood surrounding North Middle School is primarily suburban. Small houses with white siding have yards and driveways overflowing with vehicles. Trees line the streets. Within this lower middle class suburban neighborhood are large apartment complexes. These apartment complexes are a way for low income people to live "in the suburbs."

North Middle School itself has an enrollment of 730 students, 384 male and 346 female. Seventy percent of the students are on a free and/or reduced lunch plan. The school has a very diverse student body. The ethnic breakdown of the school in the 1994-1995 school year when this project took place was 41.1 percent white, 38.5 percent African American, 12.7 percent Hispanic, 6.6 percent Asian, and 1.1 percent American Indian. A list of national origins would include Samoa, Cambodia, Vietnam, Mexico, Haiti, Poland, and Peru. Sixty students were serviced by the District English as a Second Language Program.

Unit Background

This project revolved around Sand Creek Park, which is an Open Space Park in the Aurora Parks System. It is located at Peoria and 26th, one-half mile from North Middle School. Many of the students at the school live near or around the park and spend some of their free time there. The park was incorporated into academic and exploratory classes on a three-teacher, eighth-grade team, and spanned the course of an entire school year. Some of the classroom activities, specific to the park, included studying ecology, mapping the park, studying the legal system, picking up trash, and nature journaling. A goal of this unit was to instill in students a sense of ownership and responsibility for the park.

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As part of the project, the team became involved with the Aurora Open Space Park system, having Linda Strand, the manager of open space, come to speak to the students. She indicated that she would welcome student participation in the master planning process. As a result of the project, a student from our school has become a part of the team to redesign Sand Creek Park.

Unit Topic

In social studies, students studied the history of the area from a Native American perspective. In science, the flora and fauna of the park were studied. In math, students paced the park and then mapped it. In language arts, the students kept a journal and wrote their reflections about the activities. In industrial technology, students built bat houses and put them up in the park to control the insect population at Sand Creek.

Academic Goals:

Aurora Public Schools: Learner Outcomes

- Collaborative Worker
- Community Contributor
- Self-Directed Learner

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Aurora Public Schools: Complex Thinking Skills

- Analyzing Perspectives
- Constructing Support
- Systems Analysis

Aurora Public Schools: Content Proficiencies

- **Communication**

  Speaks for a variety of purposes and audiences using Standard English

  Writes a logical, well-organized multi-paragraphed paper for given audience and purpose.

- **Math**—Measurement

  Uses a variety of tools and techniques to measure and applies measurements in problem solving situations.

  Estimates and accurately measures linear dimensions to the nearest sixteenth of an inch and millimeter.

- **Science Literacy**

  After analyzing an environmental issue from multiple perspectives, demonstrates how human practices and decisions affect the natural environment and proposes alternate decisions.

  Considers ecological, social, cultural, and economic perspectives.

  Shows that changes in one part of an ecosystem affect the other parts of the ecosystem.

  Shows that people impact how ecosystems change.

- **Social Science**

  Uses knowledge of principles and practices of the United States Constitution to demonstrate ways of participating in the political system.

  Demonstrates ways of participating in the political system by analyzing past events to make decisions about current issues.

  Interprets the actions of people and societies by applying knowledge of people, places, and environments to understand the past and present and to plan for the future.

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Service Goals

Participants

- Apply ideas/skills learned in classes to the Sand Creek Park situation—formulate a plan for clean-up, insect control, etc.
- Work independently and cooperatively to accomplish goals.
- Develop a sense of ownership and stewardship for the environment.
- Engage in responsible and challenging actions that promote the common environmental good in the community.
- Reflect critically on the service learning experience.

Community

- Develop a relationship with community, collaborating to define needs.
- Provide an opportunity for participants to develop a sense of personal responsibility.
- Benefit from the actions of participant engagement in service activities.
- Provide a means for participants to plan, execute, and realize the benefits of actions that help the community.

Curriculum Activities

Science/Language Arts

Nature Journaling Activities

1. Sandwich Cookie Observation. Observe and write about a sandwich cookie as if it were totally unfamiliar.

2. Learning to Look, Looking to See (Project Wild)

3. Wild Words (Project Wild)

4. Journal Evaluation. Read excerpts from published nature journals and evaluate on a 1-4 rubric.

5. Field Trip to Sand Creek Park. Practice journaling skills at the park.

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Ecology of Sand Creek Park

1. Brainstorm a list of animals that live in the park or could live in the park.

2. In small groups, draw a food web of animals and plants living in Sand Creek Park.

3. Brainstorm the effects of human use on the animals and plants in the park.

Ecology of Bats

1. Niches: "Which Niche" (Project Wild)

2. Niche of Bats. Discuss how bats are useful in an ecosystem.

3. Bat Mythology. Read and discuss myths and reality.

4. Bat Trivia. Research and create trivia questions to be answered by other students in a trivia contest.

Math

Measurement Activities

1. Estimate the area of Sand Creek park in metric and standard measurement units.

2. Pace the park and then convert area into metric and standard measurement units.

3. Draw a map using measurements obtained above.

Other Activities

Make a spreadsheet to keep track of funds generated from a fund-raising project.

Social Studies

1. Visit the park as "explorers." Write about discovering the park for the first time. Discuss the hardships of life during those early years in our country's history.

2. Study the three branches of the government. Discuss "Whose job is it" from president to local representative and outline the chain of command according to our political system. Investigate the responsibilities of local officials and discuss the use of tax money. Guest speaker, Linda Strand, City of Aurora

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Park Planner, discussed class ideas about the development of Sand Creek Park. She shared with them a history of the park and gave them insight into how the decisions will be made for future development of the area. The result of this meeting was to build bat houses for the park.

3. Use two-column note format to outline talk by guest speaker. Write a summary of the talk using the accordion paragraph guidelines.

4. Debate open space versus park development. Using an outline of the park, make drawings of how the land in the park could best be utilized by the people and wildlife.

5. Discuss how we as individuals can be contributors to our community by donating our time (personal free time), talent (our individual skills and abilities), and treasures (money and personal items). Set up a "typical" community in the classroom to understand the interdependence of community members on one another and the importance of volunteers.

6. Discuss volunteerism. Read brief biographies of "famous" people who volunteer their time in their communities.

7. Divide into small groups to focus on the following individual projects:

   a. Writing a history of the park.
   b. Drawing scenes from the park.
   c. Fundraising.
   d. Outlining activities to do at the park.

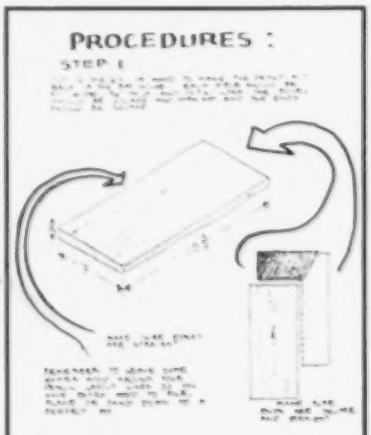
Industrial Technology

1. Form collaborative groups of four students to work together on the project from beginning to end. As a group agree on a theme for bat house.

2. Learn how to use tools necessary for bat house construction.

3. Follow plans to construct bat houses:

   a. Measure and cut wood.
   b. Gouge interior of bat house to enable bats to cling to inside.
   c. Sand and fit together pieces.
   d. Design and cut stencils.
   e. Spray paint bat stencils onto houses.



Sample page from bat house plans. Contact SSEC for complete set of plans.

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Service Activities

Students visited Sand Creek Park two times to make observations in their journals and to collect trash. They then designed a plan as to what they felt the park should look like, and took action on their plan. Students donated their money to purchase bat house materials and built the bat houses. Students, teachers, and other resource persons put up the bat houses in Sand Creek Park.

Evaluation Strategies

The project staff of the Social Science Education Consortium evaluated the Sand Creek Project using a variety of methods. Some of these included teacher and student interviews and surveys.

Reflections on the Project

During this project I learned how powerful service learning can be. The students changed Sand Creek Park for the better by cleaning up and building bat houses. But even more importantly, the students themselves were changed. These students, despite their diverse backgrounds and uncertain futures, came together believing in themselves and their ability to change their community. They came away from the project empowered with

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the knowledge that they can make a difference. As a result, I also came away empowered with an ability to make a difference in my students' lives.—Amy Rogers (Academic Teacher—Science and Language Arts)

The Community Service Project Workshop in Boulder provided Patti, Amy, and me the time and opportunity to work on an interdisciplinary project, which proved to be motivating, stimulating, and memorable for all involved. These talented teachers worked collaboratively, donating many additional hours of their time to make this unit a success. This project has provided the impetus for other teachers at North to provide service learning experiences for their students.—Julie Frese (Instructional Resource Teacher)

After attending the SSEC workshop in Boulder, I returned to school the following year with a renewed enthusiasm for community service. I always believed in students being involved with their communities and now I would be able to integrate service with learning. The project allowed the teachers to spend more time with the students outside at the park, using knowledge they acquired in the classroom. Throughout the year as the project progressed I heard comments from students about their "new found" interest in their community. They found new strengths within themselves and others and realized that they can make a difference in their community. The SSEC workshop has changed the way I'll teach from here on. As a former Peace Corps volunteer, the project was "The (2nd) toughest job I ever loved."—Patti Werner (Academic Teacher—Social Studies and Language Arts)

Santa Cruz River: A Pollution Awareness Unit

Site: Rio Rico, Arizona

Contacts: Randal Pease and Mary Vuke, Santa Cruz Valley School District #35, 1220 Camino Lito Galindo, Rio Rico, AZ 85641; 800/829-8242.

Community Profile

Santa Cruz Valley School district is located in southern Arizona and serves four communities in Santa Cruz County. Rio Rico, the largest, serves as a bedroom community of Nogales, Arizona, which is located on the border of Mexico. Tubac is primarily an artist's colony. Tumacacori and Carmen are both small rural communities. The district encompasses a growing, diverse population.

Rio Rico

Santa Cruz County increased in population from 21,000 in 1980 to 31,000 in 1991 and has continued to grow at a rapid pace. A large portion of the growth has been people employed in the produce industry, which markets produce from Mexico to all parts of the United States in the winter. Many people are employed in the "maquiladora" manufacturing plants located on both sides of the border. This is also a growing industry in the area since NAFTA has gone into effect.

Tumacacori has the Tumacacori National Monument, which is a mission started by Father Kino in 1691. Tubac has the Tubac Presidio State Park established on the site of an Indian village by the Spanish in 1752. These early settlers were drawn to the water provided by the Santa Cruz River and the lush river basin, which provided an ideal farming area. The San Cayetano Mountains rise gently to the east of the Santa Cruz River while the 9000-foot Santa Rita Mountains provide a majestic backdrop to the community.

Unit Background

This unit integrated science and social studies with service learning projects focusing on the Santa Cruz River. The Santa Cruz River originates in the San Rafael Valley in Southern Arizona, flows south into Mexico, and reenters the United States at Nogales, Arizona. Santa Cruz River links the communities of the area geographically as well as environmentally. The health of the river impacts our students' view of the future of their community. This project concentrated on local environmental problems in and around the Santa Cruz River watershed.

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Students investigated the social significance of the Santa Cruz River, the environment around the river, and governmental agencies concerned with the river. Following a variety of investigations about the river, students shared their findings with other concerned people. They were then asked to define problems and possible solutions in order to affect one of the environmental problems of the community. Participating students were provided with a positive experience in service learning as part of their character development. It was our intention to create a unit that will be easy to implement and will give students an opportunity for developing a variety of more indepth service learning projects. We hope the unit instilled lifelong commitments to environmental service.

The unit was primarily designed for intermediate students, but was used in a cross-age program. Students from a fourth- and fifth-grade classroom worked with students in a gifted program and an eighth-grade science class on various investigations of the river. The groups shared information among themselves as well as with grades 2-5 at an Earth Day Fair and various county organizations. Mr. Gary Jones of Carpenter Middle School in Nogales and Mr. Bob Conchola, Santa Cruz County School Superintendent, helped in the initial planning of this unit. Mr. Cliff Myrick and Ms. Denise Blake participated in the implementation of the cross-age unit.

Unit Topics

Science	Social Studies
Natural resources	Environmental geography
Pollution	Community resources
Water cycle	Historical development
Environment	Land reclamation
Ecosystem: riparian	Legal/ethical issues
Native plants	Uses of native plants

The community issue or problem addressed was watershed management and recreation.

Academic Goals

Science

- Define pollution.
- Identify causes of pollution.
- Define potable water and effluent.

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- Identify possible sources and types of pollutants in various water samples.
- Demonstrate the proper procedures for collecting and testing water samples.
- Research diseases caused by water pollution.
- Evaluate possible water pollution solutions.
- Participate in various field studies along the Santa Cruz River.
- Create various types of graphs to show pollutants of different water samples prior to treatment and after.
- Compare pollutants in water samples graphically.
- Interpret responses to surveys in various ways.
- Compare students' water sample results with County Health Department results.

Social Studies

- Map the Santa Cruz River in various ways illustrating head waters, flow directions, destinations, place names, and watershed.
- Explore the historical significance of the Santa Cruz River.
- Identify locations of high pollution areas through exploration of the river.
- Identify and interview various government officials in Santa Cruz County.
- Investigate Nogales, Arizona, and Nogales, Sonora, litter and pollution laws.
- Compare historical photos with present areas and identify causes for changes.
- Participate in a role-playing activity reflecting viewpoints of various concerned individuals.
- Design surveys to evaluate the public's view of the pollution problems around Santa Cruz River.
- Graph surveys of the public's responses.

Service Goals

Participants

- Work in the field of environmental water pollution.

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- Develop a sense of team and self.
- Establish a network of community resources.
- Connect community service to social studies and science.
- Reflect on field studies investigating Santa Cruz River.
- Initiate a letter-writing campaign informing and/or questioning appropriate officials.
- Publish a newsletter about the Santa Cruz River.
- Publish a story/poetry book for younger children about the Santa Cruz River.

Curriculum Activities

This unit involved many activities. First, students were introduced to the Santa Cruz River. Then they looked at clean water as a necessity, conducting several investigations around the topic of water. The group then took field trips to sample water and conduct other investigations. We then identified environmental problems on the Santa Cruz River and developed a plan of action to address an identified problem.

To provide a better understanding of the kinds of activities implemented in the unit, we describe several sample lessons below. All of these lessons can be linked back to the goals listed above.

History of Santa Cruz River

Objectives

1. Identify groups of settlers along the Santa Cruz River and evaluate why they settled in this area.

2. Produce both a small group and/or class timeline of the Santa Cruz River history.

Activities

1. In small groups, choose topics to explore/research. Topics to choose from: Native Americans, explorers, missions, early settlers, present residents, etc.

2. Prepare questions to ask guest speaker from Pimaria Alta Historical Society.

3. Investigate chosen topics through interviews, reading books, visiting Tumacacori Mission or Tubac Presidio, reading appropriate materials, etc.

4. In small groups, create a timeline of life along the Santa Cruz River. Integrate into a class timeline.

5. Prepare a presentation of historical research to share with the whole class. Notes from presentations will be included in reflection journals.

Mapping of the Santa Cruz River

Objectives

1. Identify known facts of Santa Cruz River (SCR).

2. Observe site of SCR.

3. Identify course of SCR using area maps.

4. Produce a map of the SCR.

5. Define vocabulary that deals with rivers and their watersheds.

6. Record information and feelings in reflection journals.

Activities

1. Brainstorm a list of facts about the SCR and record on butcher paper. Brainstorm questions they have about the SCR on butcher paper with room left for answers to the questions. These papers should be left up in the classroom during the unit and added to as students desire.

2. Site visit along the SCR. Record observations and feelings about the SCR during the site visit.

3. Use various types of maps (topographical, road maps, Friends of the SCR, etc.) to identify the course of the SCR.

4. Work in groups to produce maps identifying the headwater, flow directions, place names, and major watershed areas of the SCR. Students may choose to produce pictorial maps, dioramas, relief maps, etc.

5. Construct an SCR information board to be kept in the classroom to record new vocabulary encountered during discussion, students' readings, and outings.

6. Record vocabulary word definitions in students' reflection journals.

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Want a Drink of Water?

Objectives

1. Identify possible sources and types of pollutants in various water samples.

2. Evaluate your own home to determine pollutants and ways to dispose of them properly.

Activities

1. Respond to the following statement read by the teacher as the corresponding items are dropped into a glass of water: You have just been running or riding your bike for an hour. Imagine that you have not had any water for that whole hour. How does your throat feel? Are you thirsty? I have this nice cool glass of water. I'll bet you would like to drink it, but just a minute. Let me add some things that sometimes end up in our watershed. (Add a drop of motor oil.) Would you still like to drink it? (Add a shot of paint thinner.) Still thirsty? (Add a dash of battery acid.) Are you still thirsty for that glass of water?

No one would be silly enough to dump such things in a glass of water, right? So why do people dump these things down the drain or outside where rain can carry them into our water supply? (You may want to have some of the students read the warnings on the containers.)

2. Brainstorm some of the poisonous things that are liquid in our homes and might get into our water supply. Here is a list for your reference: cleaning fluids, dyes, fingernail polish remover, gasoline, glues, medicines, motor oil, paints, paint thinners, pesticides, polishes and varnishes, spot removers, etc. You may want to have students look at the warnings on containers of these items.

3. Think of things students can do to prevent these poisonous things from getting into the water. Your students may want to do a service learning project on this subject by informing the public of their prevention suggestions.

Our Environment

Stop polluting!

I know it
doesn't seem
like
a
lot
of help
but believe me
it will
be a big help,
to the plants and
animals
and
the
Environment.
So,
please, please
STOP
POLLUTING
please!

Brian Bayze,
grade 4

Can Polluted Water Hurt Plants?

Objectives

1. Conduct a scientific experiment to determine the effect of polluted water on the growth of plants.

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Activities

1. Dig up clumps of grass or buy several plants that are already sprouted.

2. Put each into its own pot of soil. Then set the pots side by side in a sunny place.

3. Water one pot with fresh water. Water the other plants with water that has been polluted with household poisons.

4. Water for a few weeks and record observations daily in reflection journals. Record final results and conclusions in reflection journals.

What Are You Drinking?

Objective

1. Demonstrate the natural water filtration properties of earth's rock layers.

Activities

1. Gather the following materials: one liter or larger clear plastic bottle, gravel, sand, charcoal, cheesecloth, food coloring, knife, rubber band, drinking glass or small bottle.

2. Collect muddy water from a stream or make your own. Flour and clay soil make good pollutants.

3. Place a piece of cheesecloth over the mouth of the plastic bottle and secure it with a rubber band. The cheesecloth holds the charcoal in the bottle; it has no significant filtration properties.

4. Cut the bottom out of the plastic bottle. Invert the bottle and fill with crushed charcoal first and then a layer of sand. Place a glass under the neck of the bottle to catch the water as it drains.

5. Pour muddy water into the bottle and wait for it to drain through the bottle. (This is only a model to help students visualize earth's filtration process. The water may still contain invisible, but harmful, pollutants after filtering and will not be pure enough to drink. Complex processes are needed to purify water completely.)

6. Write your observations and their relationship to the SCR in reflection journals.

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7. Repeat step #5 using water that has been "polluted" with food coloring. Compare the filtration of the muddy water and the colored water and relate your findings to the real world in reflection journals.

Research It!

Objective

1. Research environmental concerns and organizations across the country.

Activities

1. Read a variety of resources on the environment. Some good magazines to check out are: *Ranger Rick, 3-2-1 Contact, National Geographic World, Skipping Stones, Zillions, P-3, The Earth-Based Magazine for Kids.* Newspapers (including pictures and captions) as well as the news on radio and TV are also possible sources of information. Keep notes in reflection journal.

2. Other possible activities that may be appropriate are visiting town meetings, museums, zoos, nature centers, parks, and botanical gardens. Conducting interviews with experts can be another source of information.

3. Find out the names and addresses of groups concerned with this area in your town or state. Look in the phone book. Write a letter asking for information: be specific about what you want to know.

4. Find out names and addresses of national groups concerned with this area. Write a letter to the groups that can answer your questions. Ask what brochures the group can provide on your subject. Be sure to tell them your age. Allow two to three weeks for return information. Suggested groups:

Kids F.A.C.E.
P.O. Box 158254
Nashville, TN 37215

Friends of the Earth
218 D Street, SE
Washington, DC 20003

National Audubon Society
950 Third Avenue
New York, NY 10027

National Wildlife Federation
1412 16th Street, NW
Washington, DC 20036-2266

Sierra Club
730 Polk Street
San Francisco, CA 94109

Student Conservation Assn.
P.O. Box 550
Charlestown, NH 03630

Reading Commentary Activity

Objectives

1. To expose students to a point of view currently being debated prior to field trip.

2. To raise the level of consciousness through debate and controversy.

Activities

1. In cooperative learning groups, read "Wildlife Close-up: Wild About Golf." Come to consensus about article in groups.

2. Present to the class the agreements and disagreements within the group. Share with group social interaction observations after group presentations are completed.

4. After each team has reported, discuss growth plans along the River near Tubac, Arizona.

Wildlife Close-up: Wild About Golf

Many animals' homes are threatened when towns, cities, and communities grow. Even a green and treed golf course will change things: sunny, mown fairways are very different from the shaded areas along the Santa Cruz River. Some animals do browse on golf course grass, but those who like berries, nuts, and twigs must go somewhere else. The places animals use for shelter, or to nest, burrow, and den, change too. Animals that have adapted to life along the Santa Cruz won't have a home when the river is drained to make water traps for the golfers. What seem like small ordinary changes to us can have big consequences for wildlife. Many animals will be driven away; some will die.

Water Pollution Solutions
Debrief the River Field Trips

Objectives

1. Brainstorm problems students have encountered investigating the Santa Cruz River.

2. Define a specific problem or problems to work on.

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3. Propose solutions to solving the problem the class chooses.

4. Identify officials and concerned individuals who need to be informed or will be involved in the solution.

5. Create a timeline to implement the solutions.

6. Identify possible obstacles that might prevent the implementation of the solutions.

Activities

1. Review notes, reflection journals, and news articles about the Santa Cruz River.

2. Brainstorm problems encountered concerning the Santa Cruz River. Discuss why listed items are problems. Review the list and suggest problems that go together. Come up with a name for each category of problems.

3. Discuss with neighbors or groups the category of problems they would like to try to solve. After five minutes of discussion, vote on which set of problems the class wants to solve.

4. In cooperative learning groups, record on butcher paper answers to the following questions: Why is this a problem? Who is involved in the problem? What are possible solutions?

5. Display groups' butcher paper. Combine the information. Identify areas for which more information is needed. Discuss which solution or solutions students want to implement. Come to consensus about which solution they will be dealing with.

6. In small groups, determine what the steps are to implementing their solution. Groups should be aware of what obstacles they may encounter—cost, laws, differing points of view, etc.

7. Continue to work in this manner until the class has defined a list of activities along with a timeline that will allow them to implement their solution or solutions. The next lesson should be done before completing this timeline.

Nature

Artist working hard
To form a lovely sight
for you and I
We live in this picture
Mother Nature painted
We must care for the
home she gave
Us!

Tara Williamson,
grade 4

A Public Forum

Objectives

1. Participate in a role-playing activity reflecting viewpoints of various concerned individuals.

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Activities

1. In groups, take the role of a group of persons concerned with the Santa Cruz River. Possible roles include the Friends of the Santa Cruz River; the mayor of Nogales, Arizona; the Mayor of Nogales, Sonora; the Binational Health Coalition; the Santa Cruz County Health Department; and the Environmental Protection Agency. Research the duties and viewpoint of the role using journal notes, news articles, interviews, etc. Prepare a five-minute statement to be delivered by a spokesperson during the public forum. The statement should include your opinion of the problem, a solution you want to propose, and actions necessary to implement the solution.

2. Conduct the public forum, with a moderator allowing each spokesperson to deliver a five-minute prepared statement. After all prepared statements have been made, hold an open discussion of the issues.

3. In groups, come up with a plan of action based on the discussion. Adjust original proposals to accommodate the viewpoints of other groups.

Support Readings

Albert, Richard F., and Sylvia Long. *Alejandro's Gift* (San Francisco, CA: Sierra Club Books, 1992).

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Craighead-George, Jean, *The Missing Gator of Gumbo Limbo: An Ecological Mystery* (New York, NY: Harper Trophy Collins, 1992).

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Holmes, Anita, and David Neuhaus, *I Can Save the Earth* (New York: Julian Messner, 1993).

Project Learning Tree, *Environmental Education Activity Guide* (Washington, DC: American Forest Foundation, 1994).

Schimmel, Schim, *Dear Children of the Earth, A Letter from Home* (Minocque, WI: North Wind Press, Inc., 1994).

Sobol, Donald J., *Encyclopedia Brown and the Case of the Dead Eagle* (New York: Bantam books, 1975).

Service Learning Activities

The Santa Cruz River

The students began their visits to the Santa Cruz River on a weekly basis. The river is about a 40-minute walk from our school site. Discussions, observations, lessons, and reflections took place at several sites along the river. Each student chose a particular section of river to observe for their field study. The "mini" field trips lasted about two and a half hours and were conducted over a three-month period. The students had requests from community members to join them on the river, as well as other students from different classrooms. The students concluded their trips with video presentations that were shown throughout the school and to some community organizations.

Tubac Presidio State Park and Santa Cruz River

The students were able to get a historical perspective of the Santa Cruz River and its attraction to early settlers by visiting the Tubac Presidio State Park. The students met with a docent and took a walking field trip of old ruins as well as the Santa Cruz River itself.

Later that same month, the students were able to meet at the State Park with a local biologist. The students tested a new location of the river with strategies they had learned in class and on the river. They tested oxygen levels and explored the banks of the river with the biologist as she pointed out possible erosion due to farming, ranching, and recreation.

These field trips began a relationship with the biologist and her organization and the Friends of the Santa Cruz River. She and others became regular guests in the classroom and introduced the students to the importance of ground water, wells, land reclamation, and watershed management.

Rio Rico Utilities and Waste Water Treatment Plant

Students were able to visit and meet with the directors of each of these facilities. They were given tours of the facilities and learned about groundwater protection. The students were not naive and had prepared pressing questions about the contamination of two ground wells as well as chlorine levels found in the Santa Cruz River itself. It was at the Waste Water Treatment Plant that the director stated, "If students are as knowledgeable and eager to find solutions to the difficult problems that face our community as are these (students), then my faith in public education will be restored." The students won yet another advocate for service learning.

Evaluation Strategies

Two major strategies were used to assess student learning. Portfolio assessment included student products such as letters asking for information or informing others of problems and solutions; photographs of displays and activities; scientific investigations that answer a question; maps depicting the Santa Cruz River; drawings that illustrate a concept or objective; observation narratives and/or data sheets that illustrate a valid idea; graphs that make information easier to comprehend; research information that adds to knowledge of the problems and solutions; and video portfolios.

The second tool was the student reflection journals, an essential part of service learning. These journals are intended to be the students' record of what they learned, what they did and saw, and how they felt about what they did. Most of the activities allowed time for the students to reflect in their journals.

The pre/post unit survey developed by SSEC was used to assess the unit.

Reflections on the Project

The Santa Cruz River: An Environmental Awareness Project allowed the students to be active participants with the issues of the riparian environment within Santa Cruz County. They were given basic goals and guidelines and were able to develop much of the curriculum in the content areas of science and social studies. Integrating service learning into social studies and science was a new concept to them. This area was teacher-oriented at first, but soon students' ideas and eagerness to "get out" into the community motivated them beyond the prepared activities.

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As the newspapers, county officials, and community organizations became aware of their efforts (not by accident I can assure you!), the students began to build bridges and information links with Santa Cruz County. Students were viewed as contributing members of society concerned about their future and the future of others. There was very little negative attention, and even an unfortunate newspaper article misinterpreting the students' goals turned into support from community members.

The river project has caught on in our district. This coming year we will add two new teachers from the fourth grade, and the entire fifth grade has written the project into their social studies and science curriculum. Service learning and the Santa Cruz River have become an official part of our curriculum. Our governing board continues to look seriously at service learning.

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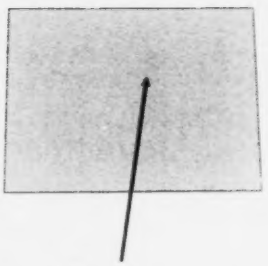
Teacher Demonstration Unit: Splendor in the Grass

Community Profile

Boulder, Colorado, is located at the foot of the Rocky Mountains approximately 30 miles northwest of Denver. Once described by the *Denver Post* as "the little town nestled between the mountains and reality," Boulder is known as one of the most spectacular small cities in the nation.


Boulder

With a population of approximately 85,000 people, Boulder is home to the University of Colorado and is an outdoor enthusiast's paradise. Rock climbing, hiking, skiing, running, and biking are common activities for many Boulderites. Boulder residents are among the most active environmentalists in the United States.

Although Boulder is most often identified with its mountain setting, the community is actually located on the western edge of the Great Plains. The climate is dry; as in many communities in the western United States, water scarcity is a concern for many residents of the community. Given the location of the community and the water resource concerns of its citizens, Boulder has become one of the most active xeriscape gardening/landscaping communities in the country. Xeriscape gardening is the practice of water conservation through creative landscaping and the growing of native plants.

Unit Background

During the summer of 1993, nine teams of teachers from middle, junior high, and elementary schools in Arizona, New Mexico, and Colorado gathered in Boulder for a monthlong service learning institute. Funded by the National Science Foundation, the institute was designed to help the school teams develop teaching units that integrated science, social studies, and service activities. The project staff developed a demonstration unit that actively engaged the teachers in an integrated science, social studies, and service learning activity.

"Splendor in the Grass" was developed with middle school life science, history, and geography curricula in mind. However, because the unit was intended solely for teacher demonstration, it was not linked to any specific school or school district curriculum. Additionally, as a training device, the unit was developed in an abbreviated form. "Splendor In the Grass" is included here as a model for unit development, not a fully developed unit.

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Unit Topics

The topics chosen for the demonstration unit were preservation of plant diversity and conservation of water. The topics were chosen because they were relevant to the concerns of many Boulder citizens and because of their relationship to the life science theme of the 1993 summer institute. Specific science and social studies topics explored in the unit are listed below.

Science	**Social Studies**
Ecosystems	Self-interest and public good
Biodiversity/native plants	Native American uses of plants
Transpiration	Cultural exchange
Plant adaptation	Population growth
Plant reproduction	Legal/ethical issues related to the environment
Xeriscape gardening	Land stewardship
Plant propagation	Land reclamation

The community issue or problem addressed was conservation of water through propagation of indigenous plants.

Academic Goals

Science

Demonstrate knowledge of the following science topics:

- Plant Adaptation
- Plant Propagation
- Taxonomy
- Ecosystems
- Biodiversity

Social Studies

Demonstrate knowledge of the following social studies topics:

- Relationship between population and natural resources.
- Relevance and importance of corn to native cultures and western society.
- Land use and public policy. Ethical issues related to citizen action.

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Service Learning Goals

Participants

- Apply classroom learning in the resolution of a community environmental issue or problem.
- Work independently and cooperatively to accomplish goals.
- Develop a sense of stewardship for the environment.
- Engage in responsible and challenging actions that promote the common environmental good in the community.
- Identify issues in structuring a service learning project and suggest ways of addressing these issues.
- Reflect critically on the service learning experience.

Community

- Develop a relationship and collaborate to define needs to be served.
- Provide an opportunity for participants to develop a sense of social efficacy and responsibility.
- Benefit in a practical sense from the participants' service activities.
- Provide a means for participants to plan, execute, and realize the benefits of actions that "make a difference" in the community.

Curriculum Activities

This demonstration unit was developed for a monthlong teacher enhancement summer institute and was designed to be taught in six days, with the final day being spent in the community providing service. An outline of the unit follows. Activities available from the SSEC's service learning project are indicated with an asterisk.

Day One

Goals

1. Introduction to unit theme: Biodiversity.

2. Explain the factors affecting biodiversity of the northern front range of the Rocky Mountains in Colorado and the factors that create various ecosystems.

3. Describe adaptations indigenous plants have made in order to be successful in the environment and compare to non-indigenous plants introduced into the area.

Activities

1. Field trip to Fort Collins, Colorado, and Colorado State University. During 45-mile bus journey, complete "Observations from the Road." Observe flora and fauna of the region, landscape and land use, and types and functions of various indigenous and non-indigenous plant life observed along the road.

2. Guided city and mountain park walk with forest entomologist. Observe examples of specific adaptations native plants and animals have made. Discuss the concepts of ecosystems and biodiversity.

Day Two

Goals

1. Name the parts of a flower and explain their functions.

2. Apply understanding of adaptations to explain the success of plants in challenging environments.

3. Analyze pros and cons of short-term uncontrolled resource consumption and long-term resource conservation.

Activities

1. Flower Analysis. Observe and describe various flowers and begin to consider similarities among flowers.*

2. Transpiration Lab. Form hypotheses to determine factors affecting transpiration in various plants, then design experiments to test them.*

3. The Problem of the Commons. Participate in a problem-solving dilemma that requires choice of a position between short-term uncontrolled growth and long-term conservation of resources.*

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Day Three

Goals

1. List reasons why specific flowers look the way they do.

2. State purposes for particular plant adaptations.

3. Identify types of native flowers.

4. Understand the diversity within angiosperms.

Activities

1. Wildflower walk in local mountain park with park ranger. Observe wildflowers and plant and animal interactions.

2. Petal Attraction. Develop flower models, "plant" the "flowers," and observe types of pollinators the flowers attract.*

Day 4

Goals

1. Describe basic plant propagation techniques.

2. Understand basic tenets of garden design.

3. Understand factors that attract various types of animal life to gardens.

4. Hypothesize the relationship between population growth and biodiversity.

5. Explain how diffusion of a plant affects biodiversity.

6. Take a position on legal and ethical questions related to biodiversity.

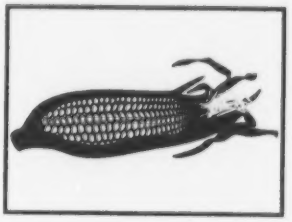
Activities

1. Lecture/discussion on garden design and xeriscaping by local landscape architect.

2. Modeling Population Growth: Effects on Biodiversity. Model two population growth scenarios (unrestricted growth and zero population growth) and hypothesize about the impact of increased population and accompanying resource consumption on the earth's biodiversity.*

3. Our Old Growth Forests: An Environmental Dilemma. Participate in a mock congressional hearing on timber interests and the interests of environmentalists. (The activity, written by Julia Ann Gold, is available from the University of Puget Sound School of Law, Institute for Citizen Education in the Law, 950 Broadway Plaza, Tacoma, WA 98402-4470.)

4. Amazing Maize. Explore the origins and spread of corn and hypothesize about the effect the introduction of corn may have had on the native plant species outside the Americas.*



Day 5

Goals

1. Develop a basic garden plan for a school or community garden site.

2. Explain the critical factors in garden site planning.

3. Develop an overall purpose and theme for gardens.

Activities

1. Lecture and discussion of garden site planning.

2. Team theme identification and site planning.

Support Readings

Bodanis, David, *The Secret Garden* (New York: Touchstone Books, 1993).

Gardening with Wildlife: The Official Backyard Habitat Planning and Planting Kit (Washington, DC: National Wildlife Federation, 1986).

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Knopf, James, *The Xeriscape Gardener: A Waterwise Guide for the Rocky Mountain Region* (Boulder, CO: Johnson Books, 1991).

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Service Activities

Following five days of classroom activities and discussions about biodiversity, indigenous and non-indigenous plants, resource management, and xeriscape gardening, the participants went into the community to apply what had been learned in the classroom to real-world problems. Two service learning activities were scheduled as part of the demonstration unit: (1) weeding thistle from native prairie land and planting a native garden in a co-housing community and (2) working with the Boulder Open Space staff to clear non-indigenous trees from the banks of a local stream. These activities are described below.

The community of Nyland is located in the city of Lafayette, a few miles east of Boulder. Nyland is a co-housing community in which all property except the individual's or family's house and small attached yard is held in common and maintained by the residents of the community. Nyland possesses its own community center, child care center, small library, and so on. Strict covenants governing resident responsibilities for the common good of the community have been created.

In order to increase participants' perspective of community, the staff decided that it would be beneficial for the participants to tour Nyland and examine the Nyland concept of community. In setting up the tour, it was further decided that the groups would help plant a native garden near the child care center and also weed thistle from grass land that bordered the Nyland community.

Following the tour of Nyland and a discussion of the concept of community upon which Nyland was founded, the Nyland community volunteers provided the teacher participants with several service options including weeding, planting trees, and clearing space for the native garden. Several of the participants expressed concern that to perform these activities in the Nyland setting was contrary to ideals of service because they were being asked to perform service that people in the community could and should do for themselves given their philosophic and financial buy-in to the community. Several of the participants refused to participate in the service activities. Heated discussion and debate between several of the participants and staff took place during the lunch break.

After lunch, a second project was coordinated by the Boulder Open Space Council. Boulder county employs a small staff and relies on many volunteers to assist with maintaining open space throughout the county. One of the efforts underway in the summer of 1993 was the thinning of Russian Olive trees

from the banks of local streams. The Russian Olive tree is an exotic plant that is quickly killing out native plants and trees throughout Boulder County.

Equipped with saws and pruning tools, the participants met Boulder County Open Space staff persons to clear a 1/4-mile stretch of stream of Russian Olive trees. The activity required a high degree of teamwork as trees were cut, hauled, and stacked for eventual disposal. Some of the older trees were large enough to require the efforts of several people. Accomplishing the task depended upon whole group planning and a high degree of cooperation.

Following the service activities, participants were instructed to reflect on the experiences and to record their thoughts in their institute journals. The following morning, the staff facilitated a group reflection on the service activities. During the session, participants were encouraged to share their views of the service activities as well as discuss the curriculum relationships between the demonstration unit and the service activities.

Evaluation Strategies

"Splendor in the Grass" was first evaluated by the staff during the oral reflection process. The staff was most interested in determining if all participants were able to make the links between the classroom activities and the service learning activities. In addition, the demonstration unit was evaluated by the formative (mid point) and summative institute evaluations.

Reflections on the Project

The project staff learned a great deal as a result of designing and facilitating "Splendor in the Grass." The most important lessons learned came as a result of the service activity at the Nyland co-housing community. From the Nyland experience the staff learned the following:

- Before conducting a service activity, all parties involved (including students) should have an opportunity to discuss their understanding of service learning. Who is it for? How is the need defined? What are the parameters?
- The importance of ongoing communication and clarification of goals and procedures is critical. As much as possible, all parties must be operating on the same assumptions and with the same agenda at the time of the service activity.

- In the event that you find yourself in a situation in which you lose control of the agenda, you must be prepared, for the sake of the students and your program, to reclaim control of the agenda.
- In the midst of getting everything set up for a service learning activity, it is essential to occasionally sit back and reflect on the activity. Putting a good service activity in place is time consuming. A periodic comparison of the overall project goals with the service project plan can help you stay directed and focused.
- Finally, realize that it's not a perfect world. When things go wrong, try to remain calm, be flexible, and be prepared to learn from the experience.

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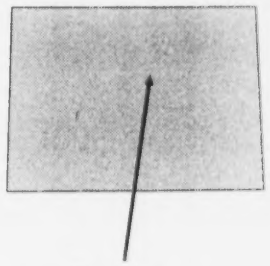
Teacher Demonstration Unit: How The Waste Was Won

Community Profile


Boulder

Boulder, Colorado, is located at the foot of the Rocky Mountains approximately 30 miles northwest of Denver. Once described by the *Denver Post* as "the little town nestled between the mountains and reality," Boulder is known as one of the most spectacular small cities in the nation.

With a population of approximately 85,000 people, Boulder is home to the University of Colorado and is an outdoor enthusiast's paradise. Rock climbing, hiking, skiing, running, and biking are common outdoor activities for many Boulderites. Boulder residents are among the most active environmentalists in the United States. Preservation of a safe and clean environment is a priority in Boulder. The city possesses one of the most aggressive recycling and environmental maintenance and improvement programs in the country.

Unit Background

During the summer of 1994, 10 teams of teachers from middle, junior high, and elementary schools in Arizona, New Mexico, and Colorado gathered in Boulder for a monthlong service learning institute. Funded by the National Science Foundation, the institute was designed to help the school teams develop teaching units that integrated science, social studies, and service activities. The project staff developed a demonstration unit that actively engaged the teachers in an integrated science, social studies, and service learning activity.

"How The Waste Was Won" was developed with middle school earth science and geography curricula in mind. However, because the unit was intended solely for teacher demonstration, it was not linked to any specific school or school district curriculum. Additionally, as a training device, the unit was developed in an abbreviated form. "How The Waste Was Won" is included here as a model for unit development, not as a fully developed model unit.

Unit Topic

The topic chosen for the demonstration unit was the use and conservation of natural resources. The topic was chosen because it was relevant to the concerns of many Boulder citizens

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and because of its relationship to the earth science theme of the 1994 institute. Specific science and social studies topics explored in the unit are listed below.

Science	**Social Studies**
Natural resources	Environmental geography
Pollution	Community development
Conservation	Economic development
Environment	Global resource management Public policy formation Stewardship Cost/benefit analysis

The community issue or problem addressed was natural resources use and conservation.

Academic Goals

Science

- Identify readily renewable, at great cost renewable, and nonrenewable resources.
- Identify examples of natural resources that are being stressed and why and how the stresses occur.
- Describe ways and efforts to sustain natural resources.
- Describe the concept and processes of recycling.
- Explain specific environmental benefits of recycling paper, metal, biomass.
- Describe the concept and process of natural resource conservation.
- Track monetary and environmental savings produced by recycling and conservation.

Social Studies

- Examine ways that human activity impacts natural environmental systems.
- Develop a sense of and practice stewardship in the community.
- Analyze the influence of diverse forms of public opinion on the development of public policy and decision-making.

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- Explain the relationships between economic development and resource conservation.

Service Goals

Participants

- Apply classroom learning in the resolution of a community environmental issue or problem.
- Work independently and cooperatively to accomplish goals.
- Develop a sense of caring for others.
- Engage in responsible and challenging actions that promote the common environmental good in the community.
- Reflect critically on the service learning experience.

Community

- Develop a relationship and collaborate to define needs to be served.
- Provide an opportunity for participants to develop a sense of social efficacy and responsibility.
- Benefit in a practical sense from the participants' service activities.
- Provide a means for participants to plan, execute, and realize the benefits of actions that "make a difference" in the community.

Curriculum Activities

This demonstration unit was developed for a monthlong teacher enhancement summer institute and was designed to be taught in four days. Three days were spent in the classroom. On the fourth day, participants spent time in the community providing service. An outline of the four-day unit follows. Activities available from the SSEC's service learning project are indicated with an asterisk.

Day One

Goals

1. Introduction to unit theme: Natural Resources.

2. Discuss the interdisciplinary nature of examining natural resources and types of natural resources.

3. Differentiate between renewable and nonrenewable resources.

Activities

1. Complete recycling survey and discuss examples of the role of the individual in conserving natural resources. (The recycling survey was titled "How Good Are You At Recycling?" published in the April 1994 edition of Delicious! Magazine. The quiz was adapted from the book *Earthscore: Your Personal Environmental Audit and Guide*, Donald W. Lotter, Morning Sun Press, Lafayette, CA.)

2. Field trip. Report on how the sites fit with the topic of natural resources. Field trip sites were:

- University of Colorado Recycling Center. The University of Colorado-Boulder is among the leading institutions in the field of campus-wide recycling. On the tour of the recycling facility, participants observed a modern, efficient recycling operation.
- Demonstration Composting Site. The Boulder Energy Conservation Center has established a site where several different composting techniques and apparatus are being tested. Participants were introduced to the science of composting and the rewards of organic gardening.
- BFI Landfill. The waste stream starts as head waters in each trash can, pools together in dumpsters, and then flows to that great ocean of trash—the landfill. How much trash gets trucked to the landfill each day? Where does it come from? Does it leak into the water table? The answers were found on the landfill tour.

Day Two

Goals

1. Discuss how field trip sites illuminated the concepts of natural resources, recycling, and conservation.

2. Learn how to make paper. Realize the savings created in energy, water, and pollution when people make recycled paper versus the use of trees to make paper.

3. Compare and contrast attitudes about trees.

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Activities

1. Group discussion regarding field trip experiences.

2. Recycling Paper. Learn how to recycle paper and discuss the natural resource savings associated with the production of recycled paper versus new paper.*

3. The Trees of Life. Examine world tree lore as a means to understand how human beings have connected themselves to their environment.*

Day Three

Goals

1. Create a mini-worm bin for use in ongoing scientific explorations. Discuss the nutrient cycle.

2. Calculate the efficiency of different types of light bulbs. Discuss how conservation is a method by which people can extend the life of nonrenewable resources and reduce pollution.

3. Examine the causes and consequences of transnational pollution.

4. Analyze attitudes towards energy conservation practices.

5. Assess the impact of human activity on environmental systems.

6. Discuss the relationship between unlimited wants and limited resources.

Activities

1. Develop a Worm Bin. Construct a worm bin as a means to recycle unwanted fruit and vegetable food scraps. (The activity is available from the Science Discovery Program, University of Colorado.)

2. Lightbulb Lab. Determine the efficiency of four types of lightbulbs.*

3. Transnational Pollution: Why Are You Dumping On Me? Analyze the causes and consequences of transnational pollution. The purpose of the lesson is to familiarize participants with different types of transnational pollution and give them an opportunity to roleplay people involved in a hypothetical case of transnational pollution.*

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4. Selling Conservation: A Madison Avenue Approach. Examine the reluctance of people to conserve energy if it means giving up material objects or pastimes associated with positive social status or convenience.*

5. Sharing Our Global Environment. Analyze the concept of a global system through analysis of countries that contribute to and feel the effects of changes in our global environmental system.*

6. Territorial Squares. Examine the various processes by which human beings attempt to resolve issues involving unlimited wants and limited resources. (This activity can be found in *Geographic Perspectives*, by Hursh, Schukar, and Simmons, Center for Teaching International Relations, University of Denver, 1994.)

Support Readings

Flavin, Christopher, and Alan B. Durning, "Don't Dim the Lights on the Energy Revolution," *Across the Board* (May 1988).

Ruckelshaus, William D., "Toward a Sustainable World," *Scientific American* (September 1989).

Somers, Emmanuel, "Transboundary Pollution and Environmental Health," *Environment* (June 1987).

Swarthout, Flora L., "The Compost Community," *The Science Teacher* (October 1993).

Swarthout, Flora L., "The Science of Composting," *The Science Teacher* (September 1993).

Tracy, Jim and Seth Jaben, "Green Lights for Home and Business," *Garbage* (October/November 1992).

Service Activities

Following three days of classroom activities and discussions about pollution, recycling, and conservation of resources, the participants went into the community on day four to apply what had been learned in the classroom to real-world problems. Two service activities were provided as part of the demonstration unit: (1) working with the University of Colorado Recycling Center and (2) working with the Boulder Head Start program. These activities are described below.

The CU Recycling Center was visited by several members of the group earlier in the project. During the first visit, the group toured the facility and met with the director of the program and several student volunteers. During the service component of the

project, participants assisted student volunteers in the collection, sorting, and distribution of recyclable materials. Throughout the morning of service, the participants learned firsthand the work involved and the benefits derived from an institutional recycling program.

The Boulder Head Start Program is located in an old elementary school in south Boulder. In discussions with the director of the program prior to the service activity, it was determined that the amount of energy being consumed to keep the building open was excessive and expensive. In addition, the Head Start staff recommended that the grounds needed attention to make the environment more aesthetically pleasing to the students and neighbors. With these needs in mind, the participants cleaned up the grounds, planted three new trees on the property, replaced leaking toilets and faucets, and installed low energy light bulbs in lights throughout the building.

Following the service activities, participants were instructed to reflect on the experience and to record their thoughts in their institute journals. The following morning, the staff facilitated a group reflection on the service activities. During the session, participants were encouraged to share their view of the service activities as well as discuss the curriculum relationships between the demonstration unit and the service activities.

Evaluation Strategies

"How the Waste Was Won" was first evaluated by the staff during the oral reflection process. The staff was most interested in determining if participants were able to make the links between the classroom science and social studies content activities and the service learning activities. In addition, the demonstration unit was evaluated on the formative (mid-point) and summative institute evaluations.

Reflections on the Project

"How the Waste was Won" taught the staff several important lessons. First, as we worked to develop the unit, we were constantly reminded of how difficult it is to construct good integrated curriculum. Additionally, we learned that developing an integrated curriculum *and* service learning unit consists of two major educational innovations, either of which would have been a significant challenge. We learned that although it was not perfect, the unit provided participants with a glimpse of the teaching-learning process and generally motivated them to begin the design of their own units.

The service component of the unit taught us that many people in the community are anxious to assist those who want to work directly on behalf of community issues or problems. As we talked with businesses and community organizations about our proposed projects, support in the form of donations of time, materials, and money poured forth. We estimate that well over $1000 of material was donated to the Head Start project. We learned that the formation of partnerships in the name of service learning projects are readily and gladly made.

Although the service activities were very structured, the relationships that were established and the high level of comfort that developed between the partners made it possible for spontaneity to emerge. This was especially true at the Boulder Head Start program as participants enjoyed their interaction with the Head Start children in attendance on that day.

One of the goals of the service project was to get teachers invested in service learning as an instructional methodology. We hoped that because of their service experience, the participants would "feel" the value of service in the curriculum. During the reflection period following the service activity, one person said, "I cannot say enough about how positive the experience was. I told the story all weekend." Another reflected that "Head Start was great. I felt good about helping others. We really did some positive projects. I think I will stop by and see the trees in the future." A third person said, "As a result of the service activity, I grew as a teacher and as a person."

Chapter 5

Assessing an Integrated Service Learning Project

At the very least, assessment requires that we come to know the student in action.

Grant Wiggins, *Assessing Student Performance*, 1993

Clearly, assessment is an integral part of teaching, one that should identify how well students and teachers have met their goals and assist them in improving their knowledge and abilities. Because the outcomes of integrated service learning projects are multiple—and sometimes unanticipated—assessing service learning projects is a complex process, for which you should begin planning early.

In addition, the variety of outcomes found in service learning units suggests use of several methods to assess student performance. For example, you will probably find it difficult to develop one assessment task that assesses gains in student knowledge about science concepts and social studies concepts, gains in their skill working with people of varying ages, and changes in attitudes.

Because we recognize the complexity of the assessment planning process and the need to use multiple assessment tools, this chapter begins with an overview of the assessment planning process. It then provides brief discussions of several assessment techniques or tools that teachers have found useful in assessing integrated service learning projects. These tools include survey questionnaires; observation checklists; writing tasks, including journals; performance assessments or projects; and portfolios. Of course, traditional assessment devices, such as well-constructed multiple-choice tests or essay tests, can also be useful in assessing some aspects of integrated service learning projects. We have not covered those devices here because we

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assume that most teachers are quite familiar with their construction and use.

Planning for Assessment

As you identify the outcomes of your integrated service learning project, you should begin thinking about how students will show that they have achieved those outcomes. The following questions can guide your thinking about how to proceed:

- What evidence will indicate that my students have achieved the specified outcomes?
- What kinds of assessment tasks can I design to generate such evidence?
- How will I communicate my expectations and criteria to students?

In thinking through these questions, it is important to focus on your most important outcomes, rather than on outcomes that are easy to assess but are nonessential or even trivial. A format like that shown on the facing page can be useful in thinking through these questions. The form has been completed for two outcomes.

In choosing assessment tasks for each outcome that you plan to assess, look for a match between the kind of information you need to show achievement and the kind of information that the task will generate. Remember also that if the task requires use of a particular skill that students have not previously used, they will need instruction in that skill, as well as opportunities to practice. For example, one teacher in a program for gifted middle school students decided to use an assessment task in which students created posters that required them to synthesize their learning. Because her students had no experience creating visuals and because instruction in creating such works was not part of her unit, her students did not perform well on the task, even though her observations of their classroom work indicated that they had learned a great deal. Thus, the type of assessment you choose to use may also affect the instruction that you plan as part of your project. The discussion of specific assessment techniques below should be helpful in selecting appropriate tasks.

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Outcome	Evidence/Indicator of Achievement
Students will be able to communicate, in writing, a position on a public issue.	Students can write persuasive letters to a public official, an acquaintance, or a newspaper. **Possible Assessment Tasks** Persuasive letter-writing exercise **Communicating Expectations** District persuasive writing rubric
Students will show a greater sense of personal efficacy (belief that one's actions can have a positive effect on others and/or the community)	**Evidence/Indicator of Achievement** Students express greater belief in their ability to affect the community. **Possible Assessment Tasks** Attitude survey Reflective writing exercise (journal or other assignment) **Communicating Expectations** Reflective writing checklist

When you have decided on the assessment task, it is equally important to determine what your standards will be and how you will communicate those standards to students. Students should know before they begin the project not only how they will be assessed, but what standards or criteria you will apply to their work. (Note that not every piece of assessment information must be used in grading; you may collect data on attitudinal changes but not use that information in assigning grades, for example.) Your expectations can be communicated through many different devices, from rubrics of various degrees of elaborateness to simpler checklists or scoring guides. Examples of several devices for communicating expectations are provided in Figures 5-1, 5-2, and 5-3.

The key...was the criteria and rubric presented to the students in advance. They knew exactly what was expected of them...I believe poorer students did a much better job than usual.—Greg Clevenger, social studies teacher, Van Hoosen Middle School, Richester, Michigan.

Through clear communication of criteria for judging success, you can help students develop the ability to assess their own learning. If you reuse particular assessment tasks from year to year, you can collect samples of students' work at various levels

Figure 5-1
Example Scoring Guide for an Essay on an Environmental Issue

The following criteria will be used to evaluate your responses:

1 point will be given if your response is clear and well organized.

1 point will be given if the response is supported with specific references to assigned readings.

1 point will be given if the response is supported with specific references to the service project and how it expanded your understanding of this issue.

2 points will be given if the response shows in-depth thought regarding the effects of this environmental issue and possible solutions.

Figure 5-2
Example Checklist for a Museum Exhibit on an Issue

Your project must include the following elements to receive a passing grade. Completing these elements in a manner that illustrates greater care and attention to detail, creativity, and deeper level of analysis will result in a higher grade:

- The project explains the issue, using accurate information.
- The project shows your position on the issue, providing a logical argument in support of your position.
- The project effectively combines visuals and text to convey information and interest the viewer.
- The project is neat, clearly organized, and easily readable.
- The project has a properly formatted bibliography that includes at least four sources, only one of which can be a standard reference work (e.g., encyclopedia, almanac).

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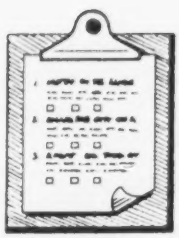
Figure 5-3
Example Rubric for Letter to a Public Office

LEVELS OF PERFORMANCE

CRITERIA	NOVICE	MEETS STANDARD	EXCEEDS STANDARD	EXEMPLARY
Substantive understanding of issue	The letter writer does not identify the issue clearly or identifies the issue but describes the problem inaccurately.	The letter writer states the issue clearly and uses accurate information to describe the problem. The letter writer cites at least one source.	The letter writer states the issue clearly and links it to a specific piece of legislation or other action. The letter writer uses accurate information to describe the current problem and cites at least two sources.	The letter writer states the issue clearly and links it to a specific piece of legislation or other action. The letter writer uses accurate information to describe the current problem and its historical roots. The letter writer cites at least two sources.
Supporting a position on the issue	The letter writer does not take a position on the issue or takes a position but does not support it.	The letter writer takes a position on the issue and provides at least two reasons to support it.	The letter writer clearly states a position on the issue and provides at least two reasons to support it. Both facts and value statements are used in the reasoning. The letter writer identifies the opposing position and provides at least one counterargument. Calls for the official to take action.	The letter writer clearly states a position and provides a compelling argument supporting it. The argument combines facts, value statements, and personal experiences. The letter writer identifies the opposing position and provides well-reasoned counterarguments. Calls for the official to take action.
Effective presentation	The letter writer does not identify him/herself or provides only basic information (name and age). The letter is rude or too casual. The letter is addressed to an official not directly involved with the issue being discussed. The letter contains numerous errors (mechanics, grammar, usage, spelling) that make it difficult to understand.	The letter writer identifies him/herself. The letter is polite. It is addressed to an official directly involved with the issue being discussed. The letter contains some errors but is still understandable.	The letter writer identifies him/herself and makes a connection with the official addressed. The official is directly involved with the issue being discussed. The letter is cordial and contains only one or two minor errors.	The letter writer identifies him/herself and makes a connection with the official addressed. The official is directly involved with the issue being discussed. The letter is cordial and contains no errors.

of performance. These samples can be shared with students in subsequent years to give them a concrete understanding of what exemplary or proficient performance truly looks like. Such benchmarks can be very helpful to students in learning to evaluate their own work.

Using Surveys/Checklists



Virtually all integrated service learning projects have outcomes that call for development of particular attitudes or values. Often, assessment of these goals is neglected because they are not used in grading. Yet teachers need assessment information related to student attitudes if they are to improve their teaching in this area and validate the effects of service learning.

Survey questionnaires are one technique for assessing student attitudes. When administered before and after instruction, questionnaires can provide diagnostic information, as well as indications of changes that occurred due to instruction.

Items on survey questionnaires can be open-ended, allowing students the chance to express themselves freely. For example, a teacher might ask students to respond to the following question:

> Do you think the city council is responsive to the concerns and ideas of teenagers? Give examples to support your answer.

Open-ended questions may sometimes elicit useful information about student perceptions that you would not otherwise find out. They do, however, take longer for students to answer and for teachers to read.

Questionnaire items can also be closed, providing students with a limited number of responses to choose among. Several different kinds of response formats are available.

Likert scale response formats allow students to indicate their intensity of feeling about something (for example, from strongly agree to strongly disagree or not at all important to very important):

> Leaders in our community care about high school students' opinions.
>
Strongly Disagree	No Opinion	Agree	Strongly Disagree	Agree

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Semantic differential items ask students to rate their reactions toward a person or idea along a series of continua formed by pairs of adjectives.

I believe homeless people are:	
Valuable	Worthless
Honest	Dishonest
Hard working	Lazy

Checklist items give students a series of statements related to a particular topic. Students can check the responses that apply to them. A checklist can be useful in determining if students have taken particular actions that might indicate commitment to targeted values:

This semester, have you (Check each space that applies):

_____Volunteered at a social service agency
_____Attended a public meeting
_____Discussed public policy issues with family and friends at least twice
_____Written a letter to a public official

Rank order scales ask students to put items in order according to perceived importance, frequency, or preference. Rank order scales provide a good means of obtaining feedback on students' responses to class activities:

Rank order the service projects you participated in from 1 to 3, with 1 being the activity you feel you gained the most from, 2 the second most, and 3 the least.

___ Tutored Head Start students
___ Worked on creek clean-up
___ Prepared voter education materials

Feedback provided through any of these devices can help teachers determine whether their service learning projects are achieving desired attitudinal goals and plan program improvements.

Observation Checklists

Teachers have always relied on their own observations of students' classroom behavior to make judgments about instruction and, sometimes, about performance. Most teacher observations are not systematic, and conducting systematic observations of

every student would be extremely difficult (if not impossible) to do. However, two strategies can make classroom observations more systematic and useful to the teacher. First, students can be taught to observe each other's skills in such areas as group communication, discussion, and cooperative learning. Second, observers (whether the teacher or students) can focus on a group, rather than on individuals.

In both of these cases, a checklist of behaviors is a useful observation tool. The checklist can be developed by the teacher or by students and teacher working together. Steps in developing a checklist include identifying what is to be assessed, listing the behaviors or characteristics to be observed, and then sequencing the items logically. To illustrate, Figure 5-4 is an observation checklist for cooperative group work.

Figure 5-4
Example Observation Checklist: Cooperative Group Work

	Yes	No	Can't tell	Comments
1. Group members check to make sure everybody is clear about what the group is trying to accomplish.				
2. Each group member participates.				
3. Group members engage in constructive give-and-take.				
4. The group sticks to its task.				
5. The group works without interfering with other groups.				
6. The group checks its progress toward accomplishing its goals and modifies its processes, if needed.				
7. The group records and summarizes what it has accomplished.				

If feasible, it may on occasion be instructive to videotape the class and then analyze the tape with the students. This process allows you to highlight examples of skills or processes that you want students to develop. While students may initially find this technique somewhat threatening, if the teacher makes it clear that his/her skills are also open for comment and critique, students may find the process more engaging!

As with attitude surveys, evaluation data gained using observation checklists can be important in improving instruction.

Writing as an Assessment

Student journals can be especially useful in providing teachers with formative evaluation information—information about what students are learning from their service experience and what questions are still unanswered. You can then use this information to shape instructional activities.

Journals are also valuable because they can help students develop the skills of reflection. Reflection involves students in responding to such questions as:

- What have I learned?
- How did I learn this? What ways of learning worked best for me?
- What do I think about my new understanding?
- How do I feel about my new understanding? about the experiences I had?
- How is what I learned in this activity related to other learning experiences I have had?

Integrating reflective activities into the curriculum helps students develop the habit of reflection and connect individual activities to larger issues. Reflection activities can be valuable early in the service learning project; students can, for example, think about what they think the service experience will be like or times that they have personally benefited from receiving service. They might also write about their own interests and strengths/weaknesses that they believe will be relevant to their success in providing service. In what areas might the experience help them grow? What strengths do they bring to the project that might help others?

It is also important to build in reflection opportunities during and after the actual service experience. Focused questions (e.g., Would I return to volunteer at this site? Why or why not? Would did I learn about myself from this experience?) or sen-

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tence starters (As a result of this experience, I plan to... A person who taught me a lot was...) can be used to prompt reflecting writing during and after the service experience.

Journals can take many forms. They can be unstructured activities limited to note taking and writing brief reflections or questions about one's experiences. More structured journals can require students to respond to specific questions; list activities in which they have been involved, along with notes on what they learned and their personal responses to the activities; identify questions or areas of uncertainty; and relate learning to their personal experience, including what they like or dislike about particular activities.

Journals should be formatted so that teachers have a place to respond (although this can also be done using self-adhesive notes). Students should also have the option to indicate that some entries are private and not to be read by the teacher; this can be done by folding the page over inside the journal.

It is generally advisable only to score journals in terms of whether they are done or not, rather than assessing their quality. The idea is to encourage students to reflect; thus, teacher feedback should help students think about difficult questions related to their learning, rather than critiquing what they write.

Of course, other kinds of writing can also be used to assess learning from integrated social studies/science/service projects. These forms of writing may include essays, articles, letters to the editor or a public official, and the like. Such tasks are especially appropriate for assessing content outcomes, as well as outcomes in the area of thinking skills. If the language arts teacher is also involved in the integrated unit, writing skills may also be a focus of this type of assessment.

Writing tasks, particularly essays, are a common assessment tool in social studies classes and in some science classes. However, our analysis of many writing tasks indicates that there is considerable room for improvement, both in constructing the prompts and in communicating expectations to students.

Units that integrate service with science and social studies have the virtue of being authentic; that is, they require students to construct meaning and produce knowledge, to use disciplined inquiry, and to produce work that has value or meaning beyond success in the classroom. Often, however, writing assignments that teachers use to evaluate learning from such units fall short in meeting the criterion of having value beyond the classroom. Many such assignments, in fact, have no purpose other than to meet course requirements and no audience other than the

teacher. In writing prompts, it is therefore particularly important to ensure that the essay has a clear purpose and audience. Writing letters to public officials, the media, or other citizens provides a specific audience. Jackie Johnson, a teacher at Campus Middle School in Englewood, Colorado, used the "My Turn" essay that appears in each issue of *Newsweek* as a format for essays with an identified audience (see Figure 5-5).

Figure 5-5
My Turn Essay, *Hope for You and Me*, by Lisa Glenn

Dear Koree:

When my friends and I came to the Hope Center to provide an Easter egg hunt and help out in the classrooms, I was doing it as a class assignment. But when I left, I was doing it for myself and for you. Going to the Hope Center had a great impact on me personally, taught me a few things, and made me realize how helpful the Hope Center really is.

Seeing how my help affected you and the other children at the Hope Center had a big impact on how I look at myself. Before my trip to the Hope Center, I always complained about not having a certain pair of shorts or a certain type of shoe that all of my friends had. But seeing your class at Hope Center made me realize that there is much more to life. I realized that what a person wears isn't as important as a person's personality and attitude. You and the other children at the Hope Center seemed perfectly happy with what you have, so you taught me to be happy with what I have. I also felt privileged and grateful for the opportunities that I have.

After helping out at the Hope Center, I became worried about all of the children who go there because of their situations. But then I thought of all the smiles I had seen and I didn't feel as bad although I still wanted to go back to the Hope Center to help make a difference.

From my visit to the Hope Center, I learned several things about children who are less fortunate and have fewer educational opportunities. I learned that all children are the same, regardless of how much money they have. I also realized that all children want to be happy, have fun, and want attention, but children who live in less fortunate circumstances need more attention because they don't receive as much at home.

I also realized how important the Hope Center and other similar organizations are. These centers provide a place for less fortunate children to go for an education and day care. Many caring people work with these children to give them the special attention they need to help them learn. The centers also provide a safe learning environment for the children who attend them. Without these centers, the children wouldn't receive the quality education that they deserve and would not receive the attention that they so desperately need.

Koree, even though I went to the Hope Center to teach you and the other children, actually you taught me several things. You taught me to appreciate what I have and most importantly, you taught me to recognize the equality of spirit of us all.

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In examining a range of writing assignments and the resulting papers from a number of teachers, we found that not only are most teachers' expectations not clearly communicated, we cannot generally infer those expectations from the grade and feedback provided students. Neither can students learn a great deal about how to improve their performance from that feedback.

Many rubrics for scoring writing have been developed by educators in the language arts field. These rubrics may be a useful starting point for science and social studies teachers in developing some means of communicating their expectations to students. However, since these rubrics focus on writing skills, some attention should also be given to content and thinking skills in developing rubrics for integrated science/social studies/service projects. The rubric for letters to public officials in Figure 5-3 provides one example of what dimensions of students' writing might be important to assess in an integrated unit. The sample rubric in Figure 5-6 can be adapted for use in scoring essays of various kinds. This essay is what is known as a holistic rubric, in that one score is given to the essay; the rubric for letters to public officials is a trait-specific rubric, in which the student gets a score for each trait of the essay being considered by the teacher. Teachers may want to experiment with both types of rubrics before deciding which will work best to communicate expectations to their students.

Information gained from writing assessments can be used not only to evaluate individual students' learning but also to plan remediation, reteaching, or new instruction to address common or individual problems noted in students' work.

Projects and Performances

Performance assessments involve evaluating students' work through authentic tasks intended to require their use of what they have learned as they might use it in "real-life" applications. Performance tasks should be administered in as authentic a manner as possible; that is, students should have the time and access to resources that they would have in facing such a problem in a real-life context.

Many teachers have used various kinds of culminating projects or performances as a way of evaluating integrated service learning projects. The types of products they have used for this purpose include:

- Group or individual presentations.
- Posters about an issue that the group has studied.

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Figure 5-6
Example Rubric for Essay-Writing Assignment

Exemplary

The essay clearly describes the issue and its importance to our society. The author's position on the issue is clearly stated and is supported with a well-organized argument. Differing points of view are analyzed. The essay links the service experience with the larger issue and cites evidence from three or more types of sources (reference works, in-class activities, service experience, original research). The essay contains no errors in content. The author uses clear, precise, and vivid language, and the essay contains no errors in mechanics, grammar, usage, or spelling.

Proficient

The essay clearly describes the issue and its importance to our society. The author's position on the issue is clearly stated and is supported with a well-organized argument. The essay links the service experience with the larger issue and cites evidence from two or more types of sources (reference works, in-class activities, service experience, original research). The essay contains very limited errors in content that do not undermine the author's argument. The author's writing is clear, and the essay contains few errors in mechanics, grammar, usage, or spelling.

Adequate

The essay describes the issue and presents the author's position on the issue. Evidence from at least one source is cited. The essay contains some errors in content or in mechanics, grammar, usage, or spelling, but the author's meaning can be clearly understood despite these errors.

Novice

The essay's description of the issue is unclear. The author does not take a position on the issue or presents no evidence to support the position taken. The essay contains errors in content, mechanics, grammar, usage, or spelling that make it difficult for the reader to understand what the author is trying to say.

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- A political cartoon.
- A brochure or other educational materials about an issue and how it affects the community.
- A "tip sheet" to pass things students have learned on to other participants.
- A museum exhibit on an issue.
- Materials for teaching younger students about the issue.
- A photo essay, videotape, or slide presentation.
- A simulated legislative hearing on an issue.

With this type of assessment, it is important to build in opportunities for students to get feedback on their work and make revisions. Instruction about how to make effective presentations or how to create a good poster may also be necessary if students have not made these kinds of products before.

As with other assessments we have discussed, clearly communicating your expectations to students is important, whether this is achieved through a rubric, simpler form of scoring guide, or checklist. The scoring guide in Figure 5-7 illustrates how a group of teachers doing an integrated unit on technology's impact on society communicated their expectations to students who were constructing exhibits on topics they selected. The exhibits also served as a service project, in that other classes came to the exposition to learn about this topic.

If you decide to use products or projects as a way of assessing your integrated science/social studies/service unit, we suggest that you create a forum in which the products created by students can reach an audience beyond the classroom—whether by inviting other classes or parents to view the products, submitting products to journals or newspapers for possible publication, or through final presentations to government agencies.

One advantage of this form of assessment is that it offers students who work better in media other than writing to perform better. Most traditional assessments do not take such variances in student ability into account. Thus, a product-based assessment can provide for more equity in the assessment process.

Figure 5-7
Example Scoring Guide for Educational Exhibits

Your exhibit will be scored on the following basis. Scoring will be done by the teacher and by students from other classes who come to the exposition to learn about technology and its impact on society.

1. How well does this exhibit clearly communicate the historic and future significance of its topic?

   2-Very well
   1-Fairly well
   0-Poorly

2. How well does the exhibit help you understand the history of this technology and allow you to predict its future?

   2-Very well
   1-Fairly well
   0-Poorly

3. How well does the exhibit illustrate its topic's affect on individuals, society, and the environment?

   2-Very well
   1-Fairly well
   0-Poorly

4. How well does the exhibit show how the technology reflects or expresses the values of the individuals and/or society who created and/or use the technology?

   2-Very well
   1-Fairly well
   0-Poorly

5. Is the exhibit balanced, presenting more than one point of view?

   1-Yes
   0-No

6. How effectively does the exhibit present information? Does it draw the viewer in and stimulate him/her to examine the visuals and text provided in the exhibit?

   2-Very effectively
   1-Fairly effectively
   0-Poorly

Portfolios

Teachers who approach writing as a process developed the portfolio as a device for assessing students' growth in writing. Portfolios are currently being adapted for use in many other curriculum areas, but they retain the essential characteristics of evaluating growth in a process of learning. A portfolio is a collection of student work selected to demonstrate the student's experiences and achievements in particular areas selected by the teacher and/or students. Some teachers call these collections "process-folios" to indicate that the work included is not necessarily finished but was selected to show development of the student's thinking. By emphasizing development and growth rather than end products only, portfolios allow teachers to emphasize the importance of the processes of learning, thinking, and reflection.

As teachers/learners we have to believe in the possibilities of our students, by trusting them to show us what they know and valuing what they are able to do with that knowledge.—Linda Rief, language arts teacher, Durham, New Hampshire, in *Portfolio Portraits*, 1992.

While the teacher may establish a list of the kinds of materials to be included in the portfolio, student participation in selection of the actual items to be included is a critical part of portfolio development. Students should also be able to justify their selections. Through the process of selection and justification, students take responsibility for both their learning and its assessment and become more reflective and better able to critique their work.

A portfolio may include a wide range of items, including group assignments and team ideas, teacher comments, student writings, student reflections, data gathered and analyzed by the student, problems and investigations, labs, individual and group projects, rough drafts and polished products, a biography of a project, and creative expressions related to the topic of study. High-tech materials (e.g., videotapes or laser discs) can be combined with more traditional print products. Work included should be dated and annotated with the student's reasons for including the item. The broad range of materials that can be included in a portfolio makes a portfolio effective in showing progress toward several outcomes.

Because a portfolio is designed to show growth over time, it is probably not an appropriate vehicle for assessing a single integrated service learning project. Sufficient change may not occur during one project to justify the time required to implement portfolios. If, however, you plan to involve students in several service learning projects over the course of a year, a portfolio could be a very appropriate assessment tool.

In selecting materials to be included in their portfolios, students should be aware of the purpose of the portfolio and the

standards that the teacher will use to make judgments about it. For example, if your students are going to learn about and do service related to three local issues over the course of the school year, you may want them to keep portfolios that demonstrate their increased understanding of the specific issues, as well as their ability to analyze and connect issues and their empathy for people affected by the issues being studied. You might ask students to compile a portfolio that includes, at a minimum, the following items:

- An initial position statement on the three issues, including what the student perceives the issue to be, his or her initial position on the issue, and why he/she thinks the issue is important to your community.
- A position paper on each of the issues, written at the end of the study of the issue. The paper should explain the issue, the student's position on the issue, and the evidence supporting that position.
- A reflection paper written at the end of the year, in which the student examines how his/her positions changed and why.
- A selection of three reflective writing pieces that the student thinks best illustrate his/her growth during the year and an explanation of why he/she picked those pieces.
- A creative work (poem, artwork, music, etc.) in which the student reflects on how his/her attitude towards people affected by the issues studied changed.
- Samples of three in-class assignments that the student believes best reflect his/her ability to analyze an issue of local importance to the community, along with an explanation of why he/she picked those assignments.
- A newspaper article that connects each issue studied to a larger state, national, or global issue, along with a paragraph describing why the student thinks the issue has wider implications.

Criteria for evaluating the portfolios might include completeness, demonstrated understanding of the issues, demonstrated ability to analyze an issue and take and support a position on the issue, ability to evaluate one's own learning, and ability to make connections among issues.

When you begin using portfolios, you may find that your purposes evolve. This is fine, as long as you keep students apprised of how your thinking is developing; indeed, sharing these changes with students can be a model for reflection and self-critique. Students should have the opportunity to change their

own thinking, eliminating items from the portfolio and substituting others as their evaluation of their work evolves.

In order to maximize benefits from creating their portfolios, students should see models of completed portfolios and have the opportunity to talk with others about how they are developing their collections of work. Conferencing with the teacher at several points in the portfolio development process is also critical to the student's growth and to the teacher's ability to understand the student's thinking and development.

Chapter 6

Resources

This chapter provides a brief starter list for creating your own library of resources on service learning. The list is not intended to be comprehensive; however, many of the resources listed also contain bibliographies or resource lists, which can help you expand your awareness of available resources.

Each entry we have included is briefly annotated. The entries are organized into three sections: teacher materials on service learning, student materials about service projects, and organizations with expertise in service learning.

Teacher Materials on Service Learning

Building Bridges to Citizenship: How to Create Successful Intergenerational Citizenship Programs (Alexandria, VA: Close Up Foundation, 1989). This guide explains exactly what its subtitle promises—how to involve young people and elders in investigating and taking action on civic issues.

Cairn, Rich Willits, with James C. Kielsmeier, eds., *Growing Hope: A Sourcebook on Integrating Youth Service into the School Curriculum* (Roseville, MN: National Youth Leadership Council, 1991). This comprehensive resource brings together many articles and resources by leaders in the field of service learning. It provides background on the service movement, definitions and a rationale, strategies for implementing service learning, and sample materials. A bibliography concludes the book.

Cairn, Rich Willits, with Theresa L. Coble, *Learning By Giving: K-8 Service-Learning Curriculum Guide* (St. Paul, MN: National Youth Leadership Council, 1993). This resource provides an introduction to service learning—what it is and why you should do it, a detailed look at the nuts and bolts of doing service learning, a framework for planning, and samples of instruction at grades K-2, 3-5, and 6-8.

Connections: Service Learning in the Middle Grades (New York: National Helpers Network, Inc., 1991). This report profiles numerous middle school service learning programs.

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Conrad, Dan, and Diane Hedin, *Youth Service: A Guidebook for Developing and Operating Effective Programs* (Washington, DC: Independent Sector, 1987). The authors, two of the founders of the service learning movement, give detailed instructions for setting up a service program, complete with exercises for teachers to complete and sample administrative forms.

Courage to Care, The Strength to Serve (Baltimore, MD: Maryland Student Service Alliance, n.d.). This teacher-training video illustrates the basics of preparing for service, conducting service, and reflecting on the experience, using teachers and students who have participated in service to illustrate these points.

Goldsmith, Suzanne, *Journal Reflection: A Resource Guide for Community Service Leaders and Educators Engaged in Service Learning* (Washington, DC: American Alliance for Rights and Responsibilities, 1995). This guide provides a rationale for use of journals to encourage reflection, descriptions of various formats that can be used, and strategies for starting and maintaining the use of journals. Also provided is an outline for a workshop introducing the use of journals.

Hall, McClellan, *The National Indian Youth Leadership Model: A Manual for Program Leaders* (Gallup, NM: National Indian Youth Leadership Project, 1991). This guide describes a youth leadership camp model employed by the National Indian Youth Leadership Project, which links the practice of service to Native American cultures.

Involving Youth in the Community (Alexandria, VA: National Association of Partners in Education, 1991). This planning manual contains several sample forms that should be particularly useful, including letters to parents, evaluation checklists/forms, and liability release forms

McPherson, Kate, *Enriching Learning Through Service: A Practical Planning Guide for Classroom Teachers* (Vancouver, WA: Project Service Leadership, 1989). This booklet provides teachers with a variety of creative ways to involve students in service. Ideas for implementing and evaluating service programs are also given.

McPherson, Kate, *Learning Through Service* (Vancouver, WA: Project Service Leadership, 1989). This book presents a practical approach to teaching reflection on service activities.

Melcher, Joseph, *Caring Is the Key: Building a School-Based Intergenerational Service Program* (Harrisburg, PA: PennSERVE, and Pittsburgh, PA: Generations Together, 1991). This guide presents case studies in intergenerational service projects, along

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with directions for developing, maintaining, and evaluating such a program.

Middle School Curriculum (Baltimore, MD: Maryland Student Service Alliance, n.d.). This document presents learner outcomes, reflection activities, and exemplary student projects from the Maryland program.

Model Learner Outcomes for Youth Community Service (St. Paul, MN: Minnesota Department of Education, 1992). This guide lists outcomes that can be addressed through service activities and provides numerous tools for planning youth service programs.

Reflection: The Key to Service Learning (New York: National Helpers Network, Inc., 1991). This resource explains why reflection is critical to service learning and provides many suggestions for reflection activities.

"Service Learning," special section of *Phi Delta Kappan* (May 1996). This issue looks at the various goals underlying service learning policies and practices and recommends being explicit about the vision that drives your program.

Service Learning Planning and Resource Guide (Washington, DC: Council of Chief State School Officers, 1994). This guide lists funding sources for service programs, giving examples of programs funded by each source. The guide also includes a resource list.

"Social Responsibility," *Educational Leadership* 48, no. 3 (November 1990). This special section of the journal of the Association for Supervision and Curriculum Development contains more than a dozen articles on social responsibility, several of which relate to service as a vehicle for developing responsible citizens.

Standards of Quality for School-Based Service-Learning (Washington, DC: Alliance for Service-Learning in Education Reform, 1993). This pamphlet briefly desribes 11 standards for effective service learning programs.

Standing Tall: Giraffes in Schools (Langley, WA: The Giraffe Project, 1991). This teaching kit contains lesson plans to help students develop confidence in their own abilities to take action and to see service to others and their communities as part of their plans for a meaningful life. Lessons also introduce real-life heroes who "stick their necks out for the common good."

Today's Heroes (Washington, DC: Hitachi Foundation, 1991). This 17-minute video can be used to introduce teachers,

parents, or students to the rewards of service. It focuses on the service activities of four young people in diverse communities across the nation, highlighting the benefits of their participation in service.

Urke, Brenda, and Maddy Wegner, *Profiles in Service: A Handbook of Service-Learning Program Design Models* (St. Paul, MN: National Youth Leadership Council, 1993). This notebook provides profiles of a wide range of youth service projects, describing their purposes and scope, how they worked, funding sources, curricular strategies, academic and community outcomes, and evaluation.

Whole Learning Through Service: A Guide for Integrating Service into the Curriculum (Springfield, MA: Community Service Learning, 1991). This resource presents five model service learning units developed by teachers. The themes of the units are intergenerational, homeless/hungry, citizenship, community health awareness, and environment.

"Youth Service," special section of *Phi Delta Kappan* (June 1991). Includes numerous articles on service learning, including several profiling successful programs.

Student Materials About Service

Active Citizenship Today Field Guide (Los Angeles, CA: Constitutional Rights Foundation, and Alexandria, VA: Close Up Foundation, 1995). This text takes students through the process of analyzing their community, identifying a problem and possible solutions, analyzing the options, and planning for action.

Dashefsky, H. Steven, *Kids Can Make a Difference: Environmental Science Activities* (New York: Tab Books, 1995). This book presents environmental science learning activities with accompanying actions young people can take to address environmental problems related to what they learn through the activity.

EarthWorks Group, *The Recycler's Handbook: Simple Things You Can Do* (Berkeley, CA: EarthWorks Press, 1990). This resource provides information about waste and recycling, along with numerous ideas for things young people can do to reduce and recycle waste.

Gilbert, Sara, *Lend a Hand: The How, Where, and Why of Volunteering* (New York: Morrow, 1988). The author provides questions to help young people identify what kind of volunteer work would be well suited to their skills and lists approximately 100 organizations that use student volunteers.

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Howard, Tracy Apple, *Kids Ending Hunger: What Can We Do?* (Kansas City, MO: Andrews and McMeel, 1992). The author provides an overview of the hunger problem, along with suggestions for actions young people can take to address the problem and lists of resources for learning more.

Lesko, Wendy Schaetzel, *No Kidding Around! America's Young Activists Are Changing Our World and You Can Too* (Kensington, MD: Information USA, 1992). This guide provides detailed instructions for planning a project designed to influence public policy. The author also profiles projects in which students were successful in affecting laws.

Lewis, Barbara A., *Kids with Courage: True Stories About Young People Making a Difference* (Minneapolis, MN: Free Spirit Publishing, 1992). This book presents stories of young people making a difference in their neighborhood, community, and world by helping in the areas of crime, life-saving, and the environment.

Lewis, Barbara A., *The Kid's Guide to Social Action: How to Solve Problems You Choose—and Turn Creative Thinking into Positive Action* (Minneapolis, MN: Free Spirit Publishing, 1991). The author combines profiles of kids who have taken action with practical tips for designing action projects. How to write a powerful letter, give a speech, conduct a survey, and raise funds are among the strategies covered.

Schwartz, Linda, *Earth Book for Kids: Activities to Heal the Environment* (Santa Barbara, CA: Learning Works, 1990). This book provides background information on environmental problems along with suggestions for action projects young people could undertake to address these problems.

Organizations with Expertise in Service Learning

Activism 2000 Project
P.O. Box E
Kensington, MD 20895
301/929-8808

This project was created to encourage young people to become politically involved. It produces resources that help young people and teachers effectively lobby on issues of concern to them.

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Association for Supervision and Curriculum Development
Service Learning/Experiential Learning Network
2109 Wynnewood Drive
Valparaiso, IN 46383
219/462-3986

This organization is a special interest group of the Association for Supervision and Curriculum Development.

Association for Experiential Education (AEE)
P.O. Box 249-CU
Boulder, CO 80309
303/492-1547; fax 303/492-0526

This membership organization promotes experiential learning in a wide range of settings, including elementary and secondary school. AEE sponsors regional conferences, as well as an annual national conference, and publishes *The Journal of Experiential Education*.

CloseUp Foundation
Active Citizenship Today (ACT) Program
44 Canal Center Plaza
Alexandria, VA 22314
800/336-5479; 703/706-3300; fax 703/706-0001

The ACT project, which is a collaborative with the Constitutional Rights Foundation, integrates service with study of public policy issues. *InterACT* is a free newsletter that promotes exchange of ideas and information among service learning professionals and teachers participating in ACT.

Community Service Learning Center
258 Washington Boulevard
Springfield, MA 01108
413/734-6857; fax 413/747-5368

This organization provides training programs for school districts designed to help them integrate service into the K-12 curriculum. Results of some center activities are available through center publications. The center also hosts an annual conference.

Community Service Learning Program
Lincoln Filene Center
Tufts University
Medford, MA 02155
617/627-3858; fax 617/627-3401

This program helps schools develop a range of service programs, including voluntary co-curricular activities and integrated service learning programs. The program also facilitates a

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network of schools undertaking service learning. A free newsletter *The Forum Report* describes events, issues, and projects undertaken by the Community Service Learning Program.

Constitutional Rights Foundation (CRF)
601 South Kingsley Drive
Los Angeles, CA 90005
213/487-5590/fax 213/386-0459

CRF coordinates several service learning projects in the Los Angeles area, as well as the national Active Citizenship Today (ACT) project co-sponsored by Close Up. The emphasis is on leadership, citizenship, and policy analysis skills for middle and high school students. The *National Youth Service Network* is a free newsletter with a range of information of interest to teachers doing service learning.

Corporation for National Service
1100 Vermont Avenue, NW
Washington, DC 20525
202/606-4880

This agency, created by Congress in 1993, supports programs that involve Americans of all ages in service activities. Programs include Americorps, ACTION, and Learn and Serve America. A free monthly newsletter *Serve! America* describes the corporation's activities.

Council of Chief State School Officers
Service Learning Alliance
One Massachusetts Avenue, NW, Suite 700
Washington, DC 20001-1431
202/408-5505; fax 202/408-8072

Through its Service Learning Project, this organization comprised of the heads of departments of education in the 50 states and seven other jurisdictions assists states in integrating service learning into state education policy, teacher preparation programs, and the classroom. The director of the Service Learning Alliance can also provide local teachers with the name of the person at their state department of education who is coordinating the state's Learn and Serve America activities.

Maryland Student Service Alliance
200 W. Baltimore Street, Room 407
Baltimore, MD 21201
410/333-2427; fax 410/333-2226

This organization was established by the state of Maryland, which has a service requirement for all students, to help schools create service opportunities for students. A variety of

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publications are available from the alliance, including the *MSSSA Newsletter*.

National Crime Prevention Council (NCPC)
1700 K Street, NW
Washington, DC 20006-6272
202/446-6272; fax 202/296-1356

NCPC sponsors the Teens, Crime, and the Community project, which involves students in undertaking service projects aimed at reducing violence by and against youth. NCPC publishes a curriculum and provides training to support the project. The free *Catalyst Newsletter* provides information related to crime prevention.

National Helpers Network
245 Fifth Avenue, Suite 1705
New York, NY 10016-8728
212/679-2482/fax 212 679-7461

Formerly the National Center for Service Learning in Early Adolescence, the network provides training and technical assistance for those working to implement service learning. The network also serves a clearinghouse function and publishes a free newsletter, *Community Youth Roles*.

National Indian Youth Leadership Project (NIYLP)
605 Vandenbosch Parkway
Gallup, NM 87301
505/722-9794; fax 505/722-9794

NIYLP focuses on developing the leadership potential of young Native Americans and promotes the ethic of service in Native American communities. The project offers training and technical assistance for adults, as well as camps for students. The free project newsletter features information about NIYLP activities.

National Peer Helpers Association
P.O. Box 2684
Greenville, NC 27858
919/757-4287; fax 919/757-4219

This membership organization is dedicated to encouraging and improving peer helping programs involving youth. The association provides training and technical assistance to schools, school districts, and other organizations and hosts an annual conference. Members receive the journal *Peer Facilitator Quarterly Magazine*.

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National Service-Learning Clearinghouse
R290 VoTech Building
1954 Buford Avenue
University of Minnesota
St. Paul, MN 55108
800/808-7378; 612/625-6276; fax 612/625-6277

The clearinghouse maintains a national database of service learning programs and resources, a library of materials, and an electronic bulletin board. It also provides referrals for training and operates regional technical assistance centers. It publishes a newsletter entitled *The Server*.

National Society for Experiential Education
3509 Haworth Drive, Suite 207
Raleigh, NC 27609-7229
919/787-3263; fax 787-3381

This membership organization promotes active forms of learning through its array of services: national and regional conferences, facilitation of a network of service learning educators, technical assistance, and services for community sponsors of interns. Its bimonthly journal is *Experiential Education*.

National Youth Leadership Council (NYLC)
1910 West County Road B
Roseville, MN 55113
800/366-6952; 612/631-3672; fax 612/631-2955

NYLC supports individuals, organizations, and communities that work in the areas of youth service and leadership. Its services include information dissemination, training, and technical assistance. It operates the Generator School Project, which is a national demonstration program involving more than 30 schools, most with low income student populations, committed to implementing innovative service learning practices. It also cosponsors the National Service-Learning Clearinghouse. Periodicals published by NYLC include *Generator: Journal of Service-Learning and Youth Leadership* and *NYLC Update*.

Pennsylvania Institute for Environmental and Community Service Learning
Philadelphia College of Textiles and Science
Henry Avenue and School House Lane
Philadelphia, PA 19144
215/951-0343; fax 215/951-0345

Because it regards service learning as vital to successful school reform, the institute provides services and resources to initiate and catalyze schoolwide approaches emphasizing service as a key element of learning. The institute provides workshops

and training and publishes a variety of service learning resources, including the free newsletter, *The Service Learner*.

Project Service Leadership
12703 Northwest 20th Avenue
Vancouver, WA 98685
206/576-5070; 206/576-5068

Project Service Leadership provides assistance to school districts, schools, and educators who are interested in using service as a vehicle for revitalizing schools and communities. The project provides technical assistance and a wide variety of staff development programs. It also maintains a database of lesson plans and serves as a regional resource center for the National Service-Learning Clearinghouse. *ServiceLine* is a quarterly newsletter available from the project.

SerVermont
P.O. Box 516
Chester, VT 05143
802/875-2278 (telephone and fax)

This statewide initiative promotes integration of voluntary service with academic coursework. The project offers workshops and training, mini-grants to students and schools who want to start service learning programs, and consultation services.

Youth Service America
1101 Vermont Avenue, NW, Suite 200
Washington, DC 20005
202/296-2992; fax 202/296-4030

This national organization provides information and technical assistance on youth service programs. It produces periodic papers on various issues in the service field.

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